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THE IN-VITRO SENSITIVITY OF H. INFLUENZAE TO PENICILLIN

WITH SPECIAL REFERENCE TO MENINGEAL STRAINS OF PITTMAN'S TYPE b

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Since the publication of Fleming's (1929) original paper on the antibacterial action of penicillin it has been generally accepted that *H. influenzae* is an organism on which penicillin has little or no bacteriostatic effect. Though Fleming and Maclean later (1930) observed some inhibitory effect on the growth of *H. influenzae* with higher concentrations of penicillin, this was not stressed, and Fleming (1932, 1937) includes *H. influenzae* in the list of organisms practically insensitive to penicillin. Hobby, Meyer, and Chaffee (1942) also emphasize this insensitivity, and Mortara, Feiner, and Levenkron (1944) obtained growth of *H. influenzae* with concentrations as high as 2 units of penicillin per c.cm. of medium, though apparently they tested only one strain.

We were recently concerned with the isolation of *H. influenzae* from nasopharyngeal swabs, using the techniques described by Fleming (1930), of incorporating penicillin as a selective agent in the medium. During preliminary observations it was found that the growth of some strains of *H. influenzae* were completely inhibited at the higher concentrations used. In view of the possibility of treating meningitis cases due to *H. influenzae* with penicillin, it was decided to investigate more fully the sensitivity to penicillin of the comparatively large number of *H. influenzae* strains in our possession.

Technique

Seven lots of heated blood-agar medium were prepared with oxalated horse blood. Before pouring these on to plates they were cooled to below 50° C. and a solution of calcium or sodium penicillin was incorporated in the media to give concentrations of 0.1, 0.25, 0.5, 1, 2.5, and 5 units of penicillin per c.cm. of medium respectively. No penicillin was added to the seventh lot of heated blood agar, which served as a control.

In all, 61 strains of *H. influenzae* were tested. Fifteen were isolated from nasopharyngeal swabs, 28 were strains isolated from bronchial secretions (Allison, J. Gordon, and Zinnemann, 1943), and 16 were known to have been isolated from the cerebrospinal fluid. Fourteen of these latter strains were of Pittman (1931) Type b, and two, although isolated from cases of meningitis, presented the characteristics of rough strains commonly present in the respiratory tract (Pittman, 1933; Mulder, 1939; J. Gordon, Woodcock, and Zinnemann, 1944). Two *H. influenzae* Type b stock strains kindly sent to us by Miss Pittman and Miss Straker were also included. Four of the Type b strains had undergone dissociation from the smooth to the rough phase during continued subculture over a long period.

Heavy broth suspensions of these organisms of approximately equal opacity were inoculated on to the experimental plates. Suspensions of the Oxford standard staphylococcus and the streptococcus 4241, used as an additional standard in this laboratory, were also inoculated on to each plate to act as controls for the inhibiting action of penicillin. The plates were incubated at 37° C. for 48 hours, and in the case of markedly inhibited growths subcultures were made to heated blood-agar plates to test viability.

Results

Respiratory Strains.—From Table I it is seen that the growths of 31 out of 43 strains were completely inhibited by a concentration of 2.5 units of penicillin per c.cm. of medium, and even

TABLE I.—*The Action of Penicillin on the Growth of 43 H. influenzae Strains Isolated from the Respiratory Tract*

	Units of Penicillin per c.cm. of Medium			
	0·5	1·0	2·5	5·0
No. of strains completely inhibited ..	2	11	31	36
" " markedly inhibited ..	2	18	9	7
" " not inhibited	39	14	3	0

in a concentration of only 1 unit per c.cm. the growths of 11 strains were completely and of 18 markedly inhibited. Only 7 strains showed growths with 5 units of penicillin per c.cm. of medium, and these were all markedly inhibited.

TABLE II.—*Action of Penicillin on the Growth of 18 H. influenzae Strains Isolated from Cerebrospinal Fluid*

Strain	Characteristics of Strains		Concentration of Penicillin in units/c.cm. of Medium						
			0·1	0·25	0·5	1·0	2·5	5·0	0
P.B.* ..	Smooth, Type b		+++	++	0	0	0	0	+++
Str. B.* ..	"	"	+++	+++	+	0	0	0	+++
Morris ..	"	"	+++	+++	+++	+++	10	0	+++
Bradford ..	"	"	+++	+++	25	0	0	0	+++
Ainsworth	"	"	+++	++	++	+	0	0	+++
L. 2351/45	"	"	+++	+++	15	0	0	0	+++
L. 3825 ..	"	"	++	7	0	0	0	0	++
D. 67947 ..	"	"	+++	++	0	0	0	0	+++
Maltby ..	"	"	+++	+++	+	+	0	0	+++
Edward ..	"	"	+++	+++	++	0	0	0	+++
Lee ..	"	"	+++	+++	++	0	0	0	+++
Coleman ..	"	"	+++	+++	+	0	0	0	+++
Day ..	Rough	"	+++	+++	+++	+++	+	0	+++
Eldred ..	"	"	+++	+++	+	+	0	0	+++
L. 6936 ..	"	"	+++	+++	+++	0	0	0	+++
Goodinson	"	"	+++	+++	++	0	0	0	+++
Rhodes ..	"	respiratory group	+++	+++	++	+	0	0	+++
Cambridge	"	"	+++	+++	+++	0	0	0	+++

* Stock strain.

+++ = Heavy growth. ++ = Moderate growth. + = Markedly inhibited growth. Figures denote numbers of colonies when less than 50. 0 = No growth.

Meningeal Strains.—Table II shows that with 2.5 units of penicillin per c.cm. of medium the growths of 16 out of 18 meningeal strains were completely inhibited and those of the

other 2 strains showed marked inhibition. Even with 0.5 unit per c.cm. of medium the growths of 3 strains were completely inhibited and those of 6 markedly so. One of the strains (Morris) varied in its sensitivity to penicillin, as in earlier experiments it showed inhibited growths even up to 5 units of penicillin per c.cm. of medium.

Discussion

These experiments establish the fact that *H. influenzae* strains are not insensitive to penicillin, though the sensitivity is very much lower than that of staphylococcal and streptococcal strains. This finding supports the results obtained by Hobby (1944). She investigated the action of penicillin on a number of Gram-negative organisms previously considered to be insensitive to penicillin. *H. influenzae* was not included in her experiments. She states that "it is apparent that penicillin exerts an antibacterial action against Gram-negative as well as Gram-positive organisms."

The practical application of these observations is restricted to cases of *H. influenzae* meningitis at the present time, since the role of *H. influenzae* as a pathogen in the respiratory tract is still under discussion. The mortality in cases of *H. influenzae* meningitis, treated non-specifically, is about 97% (Lindsay, Rice, and Selinger, 1940). Treatment with sulphonamides appears to have reduced this mortality, and, in combination with specific rabbit antiserum therapy, has lowered it further to 26% of 75 cases quoted (Alexander, 1943). Unfortunately type-specific rabbit antiserum is not available in this country, and penicillin as an additional means of treating *H. influenzae* meningitis appears to be worthy of trial. Penicillin, however, does not seem to penetrate the meninges readily, Fleming (1943) having shown that after intramuscular administration the concentration of penicillin in the cerebrospinal fluid is only one-quarter to one-half of that in the serum. For the most effective treatment of meningitis due to *H. influenzae* it would be necessary, therefore, to administer penicillin intrathecally in addition to the usual intramuscular or intravenous methods. A concentration of at least 2.5 units per c.cm. in the cerebrospinal fluid should be reached at the outset. Later, more exact determination of the penicillin sensitivity of the particular *H. influenzae* strain isolated and assay of the penicillin content of the cerebrospinal fluid should serve as a guide to the further dosage to be given.

Summary

Fifteen *H. influenzae* strains from the nasopharynx and 28 *H. influenzae* strains from bronchial secretions were examined for their penicillin sensitivity. The growths of 31 of these respiratory strains were completely inhibited by 2.5 units of penicillin per c.cm. of medium. Only 7 strains showed growths on media containing 5 units of penicillin per c.cm., with evidence of marked inhibition.

The growths of 18 *H. influenzae* strains, 16 of which were of Pittman's Type b and all of which were isolated from the cerebrospinal fluid, were completely inhibited on medium containing 5 units of penicillin per c.cm. The growths of 16 strains were completely inhibited with 2.5 units of penicillin, the growths of 12 strains completely inhibited with 1 unit of penicillin, and only 3 strains completely inhibited with 0.5 unit of penicillin per c.cm. of medium.

It is suggested that penicillin therapy is worthy of trial in cases of *H. influenzae* meningitis.

Our thanks are due to Prof. J. W. McLeod for the supply of penicillin made available to him for experimental purposes by the M.R.C., and to Prof. W. J. Tulloch and Drs. J. M. Croll, J. S. Faulds, F. W. Gunz, A. I. Messer, G. McIntosh, K. Rogers, and C. J. Young for some of the meningeal strains of *H. influenzae* used.

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MENINGITIS DUE TO A PENICILLIN- AND SULPHONAMIDE-SENSITIVE PITTMAN b STRAIN OF H. INFLUENZAE: RECOVERY

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The following case appears to be of interest by reason of (1) the occurrence of *H. influenzae* meningitis during convalescence from meningococcal meningitis; (2) the isolation of a Pittman b type of organism which was sensitive to penicillin and sulphonamides (sulphamezathine and sulphathiazole); (3) complete recovery following treatment with penicillin and sulphamezathine.

Case Report

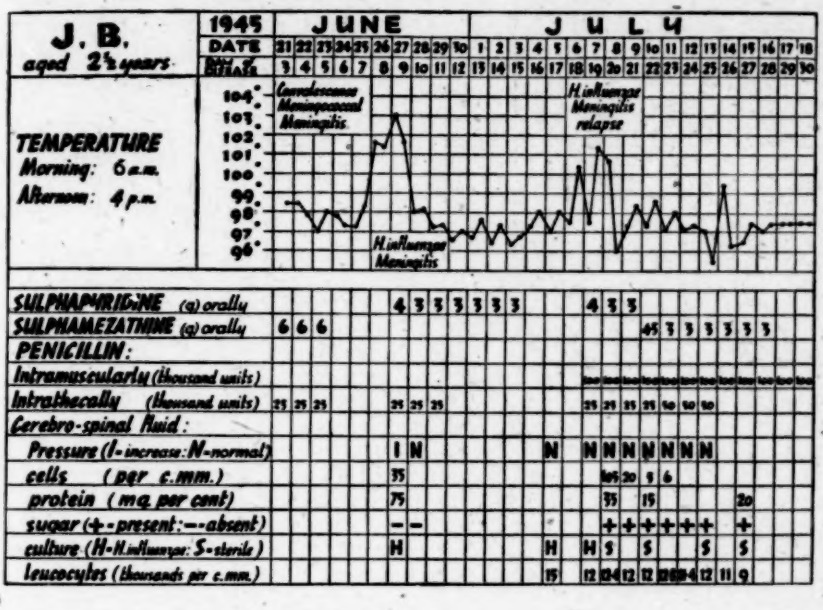
A female child aged 2¼ years became suddenly ill on June 18 with vomiting and difficulty in walking. She was admitted next day to Dundee Royal Infirmary, where lumbar puncture revealed purulent fluid under increased pressure from which a pure culture of meningococci was obtained. In the course of three days while in the Infirmary she had been given 58,000 units of penicillin intrathecally and 10.5 g. of sulphadiazine by mouth, and was transferred to King's Cross (Infectious Diseases) Hospital, Dundee, on June 21.

On admission she was semicomatose and irritable. Pupils were equal and reacted to light (the left sluggishly). Kernig's sign was present; abdominal reflexes were absent. Temperature, pulse, and respirations were respectively 98.4° F., 144, and 32. Lumbar puncture revealed slightly turbid fluid under normal pressure. During June 21, 22, and 23 she received 18 g. of sulphamezathine by mouth and 75,000 units of penicillin intrathecally, and on June 23 lumbar puncture produced clear fluid under normal pressure; sugar was present. On June 24 the child's clinical condition appeared to be normal. It will be noted that for the meningococcal infection she had been given 133,000 units of penicillin intrathecally and 28.5 g. of sulphonamide (sulphadiazine 10.5 g., and sulphamezathine 18 g.) by mouth. On June 25 the evening temperature rose at 8 p.m. to 101° F. and the child became flushed and irritable, showing signs of upper respiratory catarrh—cough, injected conjunctivae, excessive lacrimation, congested buccal mucous membrane—suggestive of the invasive stage of measles, but Koplik's spots were not seen.

By June 27 marked neck rigidity had developed, Kernig's sign was present, muscular twitchings of the face and hands were observed, and lumbar puncture produced turbid fluid under increased pressure containing 35 cells per c.mm. and 75 mg. of protein per 100 c.cm. Sugar was absent. Numerous Gram-negative bacilli were demonstrated microscopically and a pure growth of *H. influenzae* (filamentous form) was reported by Prof. Tulloch. During the 7 days June 27 to July 3 the patient was given 75,000 units of Seitz-filtered penicillin intrathecally and 22 g. of sulphapyridine by mouth. On June 28 muscular twitchings were much less frequent and next day had ceased. Improvement continued on July 1, 2, and 3, and on July 5 lumbar puncture revealed clear fluid under normal pressure; sugar was present. The evening temperature rose to 100.4° F. on July 6 and to 101.6° F. on the following evening, and a culture of *H. influenzae* was reported from the fluid obtained on July 5 and 7. During July 7, 8, and 9, 10 g. of sulphapyridine by mouth, 75,000 units of penicillin intrathecally, and 300,000 units of penicillin intramuscularly (12,500 units three-hourly) were given. On July 9 Prof. Tulloch reported that the organism was sensitive to penicillin (not so marked as standard staphylococcus), sulphamezathine, and sulphathiazole, but insensitive to sulphapyridine. Dr. Gordon, of Leeds, very kindly examined the culture, and reported that the organism possessed the characteristic colonial and serological features of a Pittman Type b.

In view of the bacteriological report sulphamezathine was substituted for sulphapyridine and during the 7 days July 10 to 16 22.5 g. were given by mouth. During the 9 days July 10 to 18 175,000 units of penicillin were given intrathecally and 900,000 units intramuscularly (3-hourly injection). Apart from listlessness and the presence of intention tremors of the hands and forearms when picking up her toys, the child remained free from symptoms and her temperature became normal on July 8, on which day lumbar puncture revealed less turbid fluid, under normal pressure, containing 105 cells per c.mm. and 35 mg. of protein per 100 c.cm. sugar was present: culture was sterile. On July 9 turbidity of fluid was less and cells numbered 20 per c.mm. Next day the fluid was clear, with sugar present and cells 5 per c.mm.: culture was sterile

Cultures repeated on July 13, 15, and 23 were also sterile. Since treatment was restarted on July 7, 32.5 g. of sulphonamide by mouth (10 g. sulphapyridine, 22.5 g. sulphamezathine), 250,000 units of penicillin intrathecally, and 1,200,000 units of penicillin intramuscularly were administered. Details of daily dosages and of leucocyte counts are shown in the Chart, from which it will be seen that the standard intrathecal dose of 25,000 units of penicillin was increased to 50,000 units on July 11, 12, and 13. The injection on the last date gave rise immediately to the following symptoms:



As soon as the injection had been completed the child lay on her side with knees drawn up and uttering agonized cries continuously. Five minutes after the injection myoclonic movements of the face, arms, and lower limbs occurred, lasting about one minute. Five minutes later pallor, sweating, and vomiting occurred: the pulse rate was 125 per minute and the temperature 95.4° F. Gradual recovery took place over the course of 6 hours: 8 hours after the injection the temperature was 101° F. Next day the condition was normal, and recovery proceeded without interruption. The patient was discharged fully recovered on Aug. 16.

Discussion

An excellent review of the results obtained during the last five years in the treatment of meningitis due to *H. influenzae* has been given by Mutch (1941) and by Gordon, Woodcock, and Zinnemann (1944). In all but one (Jones and Sudds, 1942) of the references cited by the last-named authors serological examination of the causal organism had not been carried out. Gordon, Woodcock, and Zinnemann, following the suggestion of Mutch (1941), have examined serologically the organisms isolated from five cases. From two patients, aged 7 and 5 years, non-Pittman strains were isolated: both recovered after treatment with sulphapyridine (26 g. in 6 days and 21 g. in 7 days respectively). The other three cases were due to Pittman b strains. One of the patients, aged 5 years, recovered after three relapses, following the administration of 46.25 g. sulphapyridine. The remaining two were fatal: one of these patients, aged 5 years, died shortly after admission and before an adequate dosage of sulphathiazole could be given; the other, aged 2, died suddenly without specific treatment having been given, and the organism was obtained from a post-mortem specimen. Forgacs, Hutchinson, and Rewell (1945) described 2 cases, from both of which they recovered a penicillin- and sulphadiazine-sensitive Pittman b strain of *H. influenzae*. In their first case, aged 2½ years, striking improvement followed the intramuscular injection of 30,000 units of penicillin alone, and complete recovery resulted after giving about 210,000 units of penicillin intramuscularly and 36 g. of sulphadiazine within 7 days. The second patient, aged 1 year, died 10 hours after admission, having received approximately 12,000 units of penicillin and 2 g. of sulphamezathine. The prompt response observed in the present case after administration of penicillin and sulphapyridine was almost certainly due to the former, as the organism was found to be insensitive to the latter, although rapidly acquired drug resistance cannot be excluded, since sensitivity tests were not conducted until after relapse had occurred. The tendency for *H. influenzae* meningitis cases to relapse has been a feature of this infection. Archer and Singer (1943) reported the case of a child 5½ years of age who relapsed two days after receiving 30 g. of sulphapyridine in 10 days. Complete recovery followed the administration of 32 g. of sulphathiazole in 7 days. Birch (1943) treated a child of 3 years with 23.75 g. of sulphapyridine in 8½ days: 6 days after clinical recovery relapse took place. Permanent recovery followed the administration of 10 g. of sulphapyridine in 3½ days. One of the cases described by Gordon, Woodcock, and Zinnemann (1944), referred to above, relapsed on each of three occasions when sulphapyridine was withdrawn. Complete recovery ultimately ensued after 46.25 g. of the drug had been given. In the present case relapse occurred three days after cessation of treatment with sulphapyridine (22 g. in 7 days) and penicillin (75,000 units intrathecally in 3 days), followed by complete recovery after administration of 22.5 g. of sulphamezathine in 7 days, 1,200,000 units of penicillin (intramuscularly in 12 days. and 250,000 units of penicillin (intrathecally) in 7 days. This case endorses the recommendation of Forgacs, Hutchinson, and Rewell that cases of *H. influenzae* meningitis should be treated without delay with a combination of penicillin and a sulphonamide. In view of the high incidence of bacteriaemia (Mutch, 1941) combined systemic and intrathecal administration of penicillin is indicated. While sulphamezathine, sulphadiazine, or sulphathiazole is suitable for the beginning of treatment, sensitivity tests should be carried out with a series of sulphonamides in order that the most potent may be used, or another be held in reserve should relapse or drug sensitivity occur.

Summary

A case of *H. influenzae* meningitis which occurred during convalescence from meningococcal meningitis is described.

The organism belonged to the Pittman b type and was sensitive to penicillin, sulphamezathine, and sulphathiazole, but insensitive to sulphapyridine. Complete recovery followed treatment with penicillin and sulphamezathine in combination.

We desire to acknowledge our thanks to Prof. W. J. Tulloch for helpful advice; to Dr. J. Brodie, Lecturer in Bacteriology, University of St. Andrews, who carried out the bacteriological work; and to Dr. J. Gordon, Senior Lecturer in Bacteriology, University of Leeds, who typed the organism and to whom our notes of the case have been given for inclusion in his group of Pittman b type cases.

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The report of the joint committee on the training and qualification of hospital administrators has been published as a pamphlet of sixteen pages by the Institute of Hospital Administrators, 12, Grosvenor Crescent, London, S.W.1. A representative conference held under the chairmanship of Sir William Goodenough in June, 1943, expressed the opinion that this branch of work is of such importance as to call for special training, leading to a recognized qualification, and that a standard qualifying examination should be established. The joint committee comprised representatives of Government Departments, the Association of Municipal Corporations, the British Hospitals Association, the County Councils Association, the Mental Hospitals Association, the L.C.C., and other interested bodies. The report includes among main recommendations that a standard examination in hospital administration common to all sections of the hospital service should be established; that it should be divided into two parts—intermediate and final; and that entry to the final examination should be restricted to persons with a minimum of two years' service on the administrative staff of a hospital.

REPATRIATION

A PSYCHIATRIC STUDY OF 100 NAVAL EX-PRISONERS OF WAR

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The opportunity arose during July and August this year, at Royal Naval Barracks, Chatham, to examine a number (29) of ex-prisoners recently repatriated from Germany and referred to this department on account of neuropsychiatric symptoms. We therefore sought to obtain a clearer picture of the process of resettlement and of the "normal" reactions following repatriation. To do this we interviewed, in addition, an unselected group of 71 ex-prisoners who were apparently making a satisfactory readjustment, as judged by their not having reported any symptoms or difficulties. The 29 neuropsychiatric cases were referred as the result of routine medical examinations on their return to barracks after repatriation leave; the 71 unselected normals were referred through the co-operation of the officer appointed specially to care for the welfare of these men. As a general rule each man had completed a minimum of 42 days' leave; he was already assured of six months' shore service in this country and of special privileges in respect of extra week-end and night leave. Each rating was interviewed by this officer, and efforts were made to fit him into a suitable job and, wherever possible, to arrange for him to serve near his home. In the psychiatric interviews precautions were taken to avoid implanting doubts or the seeds of symptoms in men already adjusted or adjusting satisfactorily. These precautions imposed certain restrictions on the method of inquiry in the normal subjects—viz., a single interview and the avoidance of importunate questioning on intimate matters. Those abnormal cases which did not require admission to hospital were kept under observation and treated as out-patients. Within these limitations information has been sought on the incidence, clinical characteristics, and aetiological factors of neuropsychiatric disorders among these ex-prisoners and on the normal process of readjustment.

The case material has been divided into three groups: *Group A (71 cases)*, comprising men who were found to be making a good spontaneous readjustment with only trivial and transient difficulties, or none at all; *Group B (25 cases)*—men who showed minor neurotic reactions which, while they necessitated out-patient treatment and perhaps special recommendations for suitable employment, were not sufficiently disabling to prevent continuance at duty; and *Group C (4 cases)*—men who showed moderate or severe disorders necessitating admission to hospital or invaliding. These figures are quite unrepresentative of the incidence of neuropsychiatric disorders among repatriated naval ratings; more than 300 ex-prisoners passed through Chatham Barracks during July and August. It is probable that, with very few exceptions, all of those who showed moderate or severe disorders are included in the series. The great majority of those not referred for interview can be presumed to have found no serious difficulty, so far, in making a readjustment. Some of them may report sick later on, while a number of those included in Group B may, through the operation of hysterical mechanisms or adverse circumstances, later qualify for inclusion in Group C. It is too early to attempt to assess the influence which hysterical prolongation and elaboration may have upon the prognosis in these cases. Social and economic developments, as yet unpredictable, may play a decisive part.

Although no precise estimate of the incidence of neuropsychiatric disorder among naval repatriates can be drawn from our material, we have found no reason to believe that the incidence of severe disorders exceeds 5%. Using the ordinary prognostic criteria and assuming appropriate treatment, it seems likely that even in this group the proportion of men who will become problems for their lifetime is small. One of the four men included in Group C has already been discharged from hospital fully recovered after eight weeks' treatment.

Group A.—The Normal Reaction (71 Cases)

Thirty of these men said that they had not at any time since their repatriation experienced any difficulty at all in resuming relations with their families and friends or in adapting themselves to life at home, on leave, or afterwards at duty in the barracks. A typical comment on the home-coming was: "It was just like going back for an ordinary leave." The existence of this group is perhaps one of the most sociologically important and encouraging facts that have emerged from this investigation. These men left an impression of a positive drive towards successful readjustment, and of a resilience and a resource which, in our opinion, justify a firm confidence in their stability.

The remaining 41 men admitted having experienced difficulties at first which, although not always trivial, were transient, devoid of neurotic overvaluation, and no longer caused any serious trouble at the time of their examination. We would agree with Newman (1945) in holding that "these are not neurotic or psychopathic phenomena, but a normal response of a normal man to release from an abnormal external environment."

The commonest of the phenomena of readjustment shown by our subjects are given below in order of frequency. They persisted for periods varying from a few days to two months; two weeks was commonly given as the duration.

1. Restlessness, inability to settle to any one activity for any length of time.—This very common experience often included difficulty in concentrating on intellectual activities, such as reading or writing letters.

2. Impatience and irritability.—A few said that they had found themselves too exacting, others that they had been "on edge"; one said he was "like a cat on hot bricks," two others that they were "fed up with being asked questions." Waiting in shopping and bus queues was found particularly exasperating and in a few cases provoked a "cold sweat."

3. Difficulty in mixing and entering into conversation with relatives and friends owing to lack of common topics.—A few found difficulty in becoming interested in topics outside their own experience. A few were self-conscious; one felt tongue-tied in the company of women, and another was afraid of lapsing into bad habits—e.g., swearing. Many preferred to stay indoors for the first few days.

4. Dyspepsia and diarrhoea.—This appeared in some cases to have been a physiological reaction to over-indulgence in food and drink immediately after repatriation.

5. Insomnia, usually over a very short period.

One man mentioned that he had been afraid to cross the road, another that he had on two occasions almost been knocked down by a motor-car in a busy street. Yet another became seriously alarmed when the trains in which he travelled entered a tunnel. A normally thrifty man spent his money "like water" until his relatives took him in hand. Finally, one man said he had had no difficulty in settling down once "everybody stopped trying to do everything for me all at the same time." Inability to express themselves more clearly led a few to confine their remarks to saying that they had "felt strange" for a few days. Not one of these phenomena is specific to ex-prisoners of war; they might be shared by anyone returning home after a long absence.

Antisocial traits leading to resentment of authority and to indiscipline have so far not been a serious problem. Minor leave-breaking has occurred from time to time, but grave offences have been rare. The chronic offender who has always been a "King's hard bargain" seems to be neither more nor less of a Service and social problem than he was before his captivity. A striking negative finding has been the absence of complaints of sexual difficulties. Making due allowance for reticence, it is remarkable that not one of these 71 men made any complaint on this score. Inquiry into their experiences and behaviour leads us to believe that the great majority achieved a compromise solution of this problem during captivity which did not give rise to any serious difficulties afterwards. The overwhelming majority seemed to have found hunger far more important than sex-deprivation, and observed that conversation on sexual matters and sexual unrest were mainly confined to the short periods after the arrival of Red Cross parcels, when hunger was temporarily appeased.

It may perhaps be mentioned here as illustrating their fundamental stability that some of these men who achieved a rapid spontaneous readjustment did so in the face of great domestic misfortune. One very stable man whose wife had an illegitimate baby six weeks after he returned home had, after a struggle with himself, decided to forgive his wife and to bring up the child with his own son. This man had been a prisoner for three years. His attitude had already become tolerant and reasonable. His only complaint was of nausea and anorexia, which he attributed to over-indulgence in food and drink during his first week at home. Another man had learned of his wife's infidelity nine months before he was repatriated, and became restless and unable to sleep without drugs until he came home. He still found it hard to forgive his wife, but his insomnia had cleared up within six weeks of his return.

Most of the men were not aware of any change in their character or mental outlook and said that none had been noticed by their relatives. A dozen thought there was some slight change; but, so far from this being in the general direction of impairment, all but a few who considered, for example, that they had become "harder," felt that the change was for the better—e.g., "wiser," "more serious," "broader in outlook." Here again some, for lack of capacity for self-expression, found difficulty in describing the change save as "older" in the sense of more mature. The observation of Charters (1945), based on his experience with severely wounded prisoners, applies in some degree to many in this group: "Rather would I say that the majority of these men have gained in tolerance, understanding, patience, forbearance, and courage. They have acquired a bigger concept of comradeship and of community life: They have more fully recognized the need for the individual to pull his weight in the interest of the group."

Groups B and C.—Abnormal Reactions (29 Cases)

Twenty-nine men complained of psychiatric or psychosomatic symptoms at the time they were examined. The diagnoses made were as follows:

Anxiety state	18 cases
Anxiety state with hysterical features	3 „
Anxiety state with mental backwardness	1 case
Hysteria	2 cases
Reactive depression	3 „
Migraine	1 case
Post-concussional state	1 „

In 17 of these cases the onset of symptoms occurred during captivity, in 12 after repatriation. Four (Group C) were severe enough to need admission to hospital. The remainder (Group B) were treated as out-patients while still at duty; segregation in a rehabilitation centre was unnecessary, and, in any case, appeared to hold out less promise of success than a gradual and careful reintroduction to normal duties.

Except in four cases (Group C), the symptoms and signs were seldom very disabling or severe, and usually responded satisfactorily to simple methods of explanation, reassurance, sedation, and psychological management. Often the symptoms complained of differed only in their greater intensity or persistence from the phenomena previously described as normal. It is legitimate to ask, Would these so-called abnormals have made a successful adjustment given a little longer in which to achieve it? It is hoped that our reasons for regarding these cases as neurotic will be apparent in the brief descriptions which follow. Some of these men would probably have made a complete recovery sooner or later without any special treatment, others might never have asked for medical help had they been able to continue their efforts to readjust at a slower tempo in their own homes. However liberally leave may be granted and Service rules interpreted, returning to duty, with its unwelcome separation from home, the inevitable mixing with a crowd of strangers, and the obligation to conform with an impersonal code of behaviour, is an ordeal for the repatriated prisoner. Help in facing up to this ordeal was what many of these men required.

Selected Case Summaries

Case 1: Group C.—Able seaman aged 27; C.S.* Date of capture, June, 1942. Joined the Navy in 1933. Strong family history of psychosis. Previously stable and healthy apart from slight unilateral deafness. Very nervous during the action which led to the sinking of his ship and to his capture. Sustained splinter wounds of the neck and leg during this action. During captivity, after five weeks in hospital for his wounds, he had "influenza" three times; he complained of frequent "blackouts" while short of food in Italy, and of tinnitus dating from the final action. In Jan., 1945, his camp was evacuated owing to the Russian advance, and he began a march which lasted four months. The columns were attacked on two occasions by Allied planes and many men were killed or wounded. The stress was very severe and there was panic. On his return home he found his wife in bad health, having been invalided a year before from the W.R.N.S. He found it difficult to settle down at first, and "kept looking round to see if anyone was following with a rifle." He preferred to be alone, and would leave the room if anyone came in. On waking he had difficulty in realizing that he was not still a prisoner. He complained of bad dreams and of twitching of the face. On examination—after leave:—Intelligence normal; nutrition good; marked tremor; increased tendon reflexes; facial tics; blood pressure 150/105. Diagnosis:—Anxiety state. Main precipitating factors: experiences on the long march shortly before repatriation, and discovery of his wife's ill-health on return. Admitted to hospital and later invalided on grounds of aural and psychiatric disabilities.

Case 2: Group B.—Stoker aged 27; C.S. Captured Jan., 1942. Joined the Navy in 1938. Previously healthy and stable; keen on games and athletics. Considerable stress in previous actions (ship sunk). During the action which led to his capture he was wounded in the right knee and had to swim around for ten minutes before being picked up by a German trawler. Throughout his captivity he was afraid to do anything strenuous lest his knee, which gave continual trouble, should be permanently crippled. Thus he became a reluctant spectator of the games and other physical activities which he had formerly enjoyed. This enforced inactivity preoccupied his mind and became the dominant factor in his life. Shortly before his release he became very nervous after Allied bombing of his camp, which resulted in a number of casualties. At the end of his leave he reported sick because his "mind seemed to wander off." He had found that his attention often lapsed during conversation, and he would "come to" to find that his companion had broken off the conversation and was walking away. On examination:—Intelligence normal; nutrition fair; no physical signs of anxiety. He was mildly depressed, concerned about his lapses of attention, but in other respects showed a certain apathy, indifference, and loss of initiative and vitality in both physical and mental spheres, which he expressed as, "It's taken the stuffing out of me." Diagnosis:—Mild reactive depression. Main precipitating factor: enforced inactivity. Improved with reassurance, but prognosis uncertain for complete recovery.

Case 3: Group B.—Signalman aged 25; H.O.* Captured May, 1941. Joined the Navy in Aug., 1940. Previously healthy and stable. Considerable stress in earlier actions. In the action which led to his capture his ship was sunk with the loss of hundreds of lives. He remained well for the first two years of his captivity, then developed anxiety symptoms after Allied bombing of the camp area which resulted in 30 deaths. Subsequently was excused work on many days on account of headaches. "Something snapped in my brain." During the period after release while awaiting repatriation he developed a fairly severe psoriasis (his first attack), which cleared up after he was admitted to hospital while on repatriation leave. After leave he reported sick, complaining of apprehensiveness, self-consciousness, anorexia, and epigastric discomfort. He was chiefly concerned, however, over the fact that during leave he had been capable of intercourse with his wife only twice a week. He was 2 st. under weight on return home and had regained this during leave. He had married only nine months before he was captured; he admitted to having masturbated "nearly every night" while in captivity, and felt guilty about it. On examination:—Intelligence normal; nutrition good; no physical signs of anxiety. He had not expected to be called on to continue to serve in the Navy. The personality was hysterical; he exhibited much self-pity and a poor morale. Diagnosis:—Anxiety state with hysterical features. Main precipitating factors: stress at time of capture, bombing during captivity, worry over marital relations, the whole coloured by deficient morale.

Taking these groups of 29 cases as a whole the symptoms most often met were irritability, nervousness, gastro-intestinal disturbance, insomnia, restlessness, dislike of mixing in crowds, excessive sweating, tremulousness, self-consciousness, nightmares, headaches, and a feeling of being out of touch. Many other symptoms—e.g., listlessness, difficulty in concentration, intolerance of noise, "blackouts"—were only slightly less common. The frequent occurrence of psychosomatic complaints—nausea, anorexia, diarrhoea, excessive sweating, tremulousness—was striking. Tachycardia and tremor were common physical signs, but, except in the case of one man with early mitral stenosis, effort syndrome was not seen.

* C.S. = Regular naval ratings. H.O. = Ratings serving for the duration of hostilities only.

As to character and mental outlook, a number of these men reported slight changes in the direction of increased tolerance and maturity similar to those met with in Group A. The problem is complicated by the persistence at the time of examination of symptoms, such as irritability, which may or may not prove to be permanent. There was in some cases an impairment of morale which may influence the prognosis with respect to readjustment to Service life. With this proviso, however, the outlook for ultimately successful readjustment, at any rate as civilians, appeared in most cases to be good.

Aetiological Factors: 1. Factors operating Before Captivity

These hundred men belonged to many branches of the Royal Navy—seamen, engine-room, and special branches—and differed in non-commissioned rating, age, experience, and background. They represent, in fact, a cross-section of the whole, and could hardly have been a better illustrative sample had they been the result of deliberate choice. Perhaps these points can best be shown in tabular form, although any conclusions which may be drawn from such small numbers can only be regarded as lending weight to clinical findings.

TABLE I.—*Service Background*

	Group A (Normal Reaction) 71 Cases		Groups B and C (Abnormal Reaction) 29 Cases	
	No.	%	No.	%
Total number of N.C.O.s	18	25	9	31
Total number below N.C.O. rank	53	75	20	69
Ratings serving for hostilities:				
Volunteers	15	29	7	24
Conscripts	29	41	8	28
Ratings in continuous service	23	32	13	45
Reservist ratings	4	6	1	3
Length of service in R.N. before capture:				
Two years or less	48	68	16	55
Three, four, or five years	8	11	5	17
More than five years	15	21	8	28
Ages (Aug., 1945):				
27 and under	37	52	20	69
28 and over	34	48	9	31
"Age-and-service groups" for demobilization:				
30 and under	25	35	12	41
31 and over	29	41	8	28
Regular naval ratings with further service	17	24	9	31

Table I shows that abnormal reactions are fairly evenly distributed among all types of rating and are not predominant in any one group of men. An exception is a higher percentage of younger men in the abnormal groups, B and C. These men were captured from ships or in actions in widely different situations and circumstances. Such names as Crete, Normandy, Coastal Forces, Malta Convoys, Submarines, Dieppe, Saint-Nazairè, and Spitzbergen are examples which illustrate their varied service; there is even one parachutist among them.

TABLE II.—*Experience of Action Stress*

	Group A (71 Cases)		Groups B and C (29 Cases)	
	No.	%	No.	%
A history of previous action and severe war stress in the Navy	35	49	16	55
Severe stress at time of capture	71	100	28	96
Many shipmates killed in action at time of capture	42	59	17	59
History of bad reaction to stress in action at or before capture	1	1	4	14

A glance at Table II shows that the amount of stress of this kind is almost evenly shared between the two groups. It is here, however, that the first striking difference can be noted. Although the totals are very small, a higher proportion of those who show abnormal reactions on release reacted badly to action stress.

This difference is again apparent when the personal histories of these ratings are considered. Here, also, each figure in itself is small, but the total of evidence is in favour of a higher proportion of those with a neurotic predisposition in Groups B and C.

TABLE III.—*Personal Histories*

	Group A (71 Cases)		Groups B and C (29 Cases)	
	No.	%	No.	%
Family history showing two or more near relations with psychiatric disorder	2	3	6	21
Illegitimate birth	1	1	1	3
Loss of both parents in childhood	4	6	1	3
Loss of one or other parent in childhood	7	10	4	14
Neurotic traits in early childhood	0	0	5	17
A poor school record (Standard V or below)	0	0	2	7
Unstable work record	3	4	3	10
Serious physical illness in the past	1	1	1	3
Neurotic breakdown in the past	1	1	2	7
Evidence of marked personality defect	2	3	7	24
Married or engaged before capture	32	45	12	41
Single	39	55	17	59

2. Factors operating During Captivity

The men were confined in many different camps in Italy and Germany, a large proportion of them in either Marlag M or Stalag 8b (Lamsdorf). Many of the lower ratings were given arduous forced work by the Germans. A few managed to avoid it, usually from patriotic motives, but a small number preferred to occupy their time in this manner; ratings of N.C.O. standing were not liable for forced labour. Neurotic reactions on release were a little more frequent in those who had done forced work. Nearly all were very badly fed, and most of them lost a considerable amount of weight. Red Cross parcels were all-important, and in periods without them suffering was greatly increased. Exposure to physical cruelty by their captors and exceptional privation (save during the final march) were very rare and almost confined to Group A. Large numbers, however, were on the march for anything from a fortnight to four months in the early months of 1945. This was exceptionally rigorous, and in some cases they were exposed to bombing and shooting by our planes, which killed some of their companions. Again, a few were bombed in factories or in their camps earlier in captivity. Neurotic reactions were more frequent in men exposed to these hardships and dangers, and several ascribed anxiety symptoms to such experiences. Physical illness was not uncommon, and was more frequent in Groups B and C. Some also had been wounded on capture. Neurotic illness during captivity was not recorded in Group A and was rare in Groups B and C.

The length of captivity varied between nine months and five and a quarter years, the greatest number—42—being in captivity for three years. Neurotic reactions were somewhat more common in those who had been imprisoned for more than three years. (Of the men captive for more than three and less than four years, 22 in Group A and 10 in Groups B and C were from the same ship, a destroyer, in which, incidentally, morale had been extremely high.)

Finally, among the factors operating during captivity, the recreation and activities of these ratings were studied. Forced labour did not leave time or energy for much activity, nor did insufficiency of food help matters. It is true that a higher proportion of abnormal reactions was found in those who did not occupy themselves, but it is difficult to assess whether this was *post hoc* or *propter hoc*.

It seems to be apparent from Table IV that although the stresses of captivity, such as greater duration, forced labour, and physical illness, were more frequent among those who subsequently developed neurosis, these differences are on the whole small. In fact, in contradistinction to the prophecies of some writers, neurotic predisposition as shown in Table III appears to be of somewhat greater importance than the stresses of captivity. It should, however, be mentioned that among the 30 men in Group A who experienced no difficulties at all during the period of readjustment the proportion who had been subjected to severe stress in action before the incident which led to capture was less than in any other group. During captivity proportionally fewer of these men lost weight, were exposed to bombing or gunfire, or suffered from physical illnesses.

The return in the near future of many men who have been in Japanese hands may throw greater significance—in their case at least—on those factors operating during captivity. It remains to be seen what will be the effect of this latest example of man's inhumanity to man.

TABLE IV.—*Factors operating during Captivity*

	Group A (71 Cases)		Groups B and C (29 Cases)	
	No.	%	No.	%
Captured by Germans	39	55	17	59
Captured by Italians and later in German hands	32	45	12	41
Wounded at capture	15	21	5	17
Average duration of captivity	2·8 years		3·2 years	
Forced labour	39	55	21	72
Loss of weight during captivity	54	76	24	83
Admitted sex difficulties during captivity	2	3	5	17
Bombed in camp or on the march	34	48	17	59
Long march lasting 2 weeks to 4 months, early 1945	42	59	20	69
Other stress: In open boat for some days after ship sank; Beaten up by S.S. men; Chained for a long period; Exceptional privation	9	13	2	7
Physical illness during captivity	24	34	15	52
Neurotic " " "	0	0	3	10
Domestic stress at home during captivity (death of near relative, etc.)	5	7	1	3
Recreation (physical):				
Active (played games, etc.)	49	69	11	38
Inactive (watched games, etc.)	17	24	13	45
None	5	7	5	17
Recreation (intellectual):				
Active (constructive study, etc.)	24	34	9	31
Inactive (light reading, etc.)	40	59	14	48
None	5	7	6	21

3. Factors operating after Repatriation

The very successful and greatly appreciated policy of repatriating these men by air entailed an extremely rapid transition from captivity, danger, and privation, and implied that the demand for readjustment came with startling suddenness. Their arrival was in most cases to happy homes. Difficulties and even tragedies were bound to occur in a few cases, and it was found that the incidence of serious domestic misfortune after return was 6% in Group A and 10% in Groups B and C. It certainly accounted in part for the onset of symptoms in a very small number. To offset this preponderance of domestic misfortunes in Groups B and C there was also a higher incidence of long-awaited marriages and new engagements in these groups.

In addition, the circumstances to which these men were called upon to adapt themselves on repatriation varied according to their status in the Navy. Some of the regular naval ratings had several years still to serve; others were nearing or had already passed their pension date, and could expect early release. Those who were "Hostilities only" ratings were scheduled in age-and-service groups (see Table I) for release within varied periods of time. In general they showed a willingness to carry out their contract, though it was noticeable that some of the more senior ratings who had previously been keen and ambitious in their naval careers had lost their enthusiasm. While prepared to serve out their time, they looked forward eagerly to the day when they could settle down at home in a "quiet job."

It is of importance that these repatriated men have come back to a victorious country, with the hope of taking up the threads of their lives again apparently to be fulfilled. The optimism induced by this has hardly been damped by the austerity of life in this country, although many were surprised at the parseness of rations and the emptiness of the shops. It is yet too early for the full effects of the difficulties of a post-war world to make themselves felt. Again, a sweeping Labour majority may have added to their hopes of better social conditions. The influence of these factors cannot be discounted when the low incidence of neurosis is considered.

Summary

In a series of 100 naval ex-prisoners of war, examined two to three months after repatriation, the incidence of severe neurotic reactions was very low. An encouragingly large proportion had no difficulty at all in achieving a successful readjustment within this period of time. Neurotic reactions, usually of no great intensity, occurred in a minority of the cases. The symptomatology comprised nearly all the characteristics common to the minor affective disorders of Service and civilian practice, and was distinguished by the frequent occurrence of psychosomatic complaints and of restlessness and irritability. The tendency was for these symptoms to respond fairly quickly to simple methods of treatment and management. While psychogenic factors operating before, during, and after captivity all played their part in precipitating neurotic reactions, constitutional predisposition was found, on the whole, to have been more important. This finding does not exclude the possibility that where there are greater environmental stresses, as may prove to have been the case among prisoners in Japanese hands, these may gain greatly in importance.

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SIXTH-NERVE PARALYSIS AFTER SPINAL ANALGESIA

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Analgesia by spinal injection was first practised about the beginning of the century. The pioneers used cocaine or cocaine and adrenaline for induction, but owing to the frequency of toxic after-results the method fell into disuse for a time. The introduction of stovaine soon followed, giving the procedure a new stimulus, and it was adopted by surgeons throughout the world.

The early workers reported paralysis of the eye muscles as a rare complication. Tuffier (1905–6), having used this method in 2,000 cases, gave it as his opinion that no bad results followed spinal analgesia. General experience since that time calls for some revision of his opinion, because, in addition to other unfavourable results, paralysis of the cranial nerves has occurred in hundreds of cases after spinal injection, and of the 12 nerves only the olfactory, glossopharyngeal, and vagus have escaped (Hayman and Wood, 1942). However, of all these cranial paralyses well over 90% involve the abducens. The incidence (Hayman and Wood, 1942) of abducens paralyses after spinal injection was given by Terrien in 1923 as one in 100; by Contonnet and François in 1933 as one in 250. Experience here (1944) indicates that it occurs once in 202 cases.

During the last ten years the literature on the subject has been sparse, and the number of cases reported comparatively small. Hayman and Wood (1942) discuss the subject and publish two cases. The paucity of records of late years may be due to improvement in technique and drugs, or possibly to lack of interest in the subject. Whatever the cause, the fact remains that during the last two years, since making inquiries about the condition, 10 cases of sixth-nerve paralysis after spinal analgesia have been referred to me.

The abducens is notoriously vulnerable in cerebral lesions and increased intracranial pressure generally. The various theories that have been advanced to account for this susceptibility of the sixth nerve to injury are:

1. That the long course of the nerve exposes it to injury. Incidentally the trochlear (fourth) is the most slender cranial nerve, and it has the longest intracranial course—about 75 mm.

2. Cushing's opinion that the nerve may be damaged between the pons and occipital bone at the site where the anterior inferior cerebellar artery crosses it anteriorly at right angles, as it does in over 80% of normals. The internal auditory artery is also credited with injuring the nerve in the same way.

3. That the nerve may be injured where it bends over the angular apex of the petrous bone. As in increased intracranial pressure, the brain in some cases may be forced down into the foramen magnum, and the sixth nerve, being practically fixed at its two ends, in the pons and cavernous sinus, becomes stretched and is damaged as it bends over the more or less sharp petrous angle.

The following theory, though not providing the basal cause of paralysis of the sixth nerve, would account for the fact

that it so often shows signs of injury earlier than any of the other cranial nerves, and that it may do so even if its anatomical disadvantages did not exist.

A New Theory as to the Cause

In intracranial conditions, toxaemias, mechanical disturbances, and inflammations all the cranial contents are influenced by the disturbing factor, and frequently there comes a time when the abducens shows clinical signs of being affected—the first nerve to show evidence of trauma. I submit some points concerning binocular vision and the necessary faculties concerned in its maintenance that seem to be definite contributing factors in causing the abducens to be so often the earliest cranial nerve to supply clinical evidence of cerebral pathology.

It is well recognized that the highest and most recently acquired faculties and attributes of the human being are the first to be lost or disturbed under stress. A patient undergoing general inhalational anaesthesia without premedication is the common illustration of the fact. From a phylogenetic point of view, binocular stereoscopic single vision—characteristic of the primates only—is one of these latest-acquired attributes. Binocular vision (Duke-Elder, 1932) is a single mental impression, brought about by the co-ordinate use of the two eyes. To maintain it it is necessary (1) that the two fields of vision overlap; (2) that the corresponding points of each retina function together; (3) that the cerebral fusion-sense functions; (4) that the synergic action of the extraocular muscles is such that the three previous conditions can function.

Ample evidence of defects in the last three conditions necessary to maintain binocular vision is very prevalent. Non-correspondence of retinal points, the dominant eye, and defective fusion sense are of frequent occurrence. Eye-muscle imbalance and insufficiencies, concomitant squint, the heterophorias or latent squints, and refraction errors all have a definite bearing on the subject, and are so common as to affect a considerable proportion of the population. The eye examinations of candidates for fitness for flying have revealed the frequency of defects in the binocular vision system among seemingly normal young men.

A study of the evolution and physiology of vision in general encourages one to appreciate how the injection of a toxic drug into the central nervous system could probably cause diplopia. The whole visual faculty and the brain are so essentially interdependent that the late Prof. Elliot Smith stated that the cultivation of vision acted as a powerful stimulus in the development of the cerebral hemispheres, and that vision is the fundamental factor in the development of the cerebral cortex and intelligence of the human type.

The varying stability of the binocular vision function makes it possible that any cerebral pathology, even slight in degree, would tend to cause a breakdown of the binocular system, with resulting diplopia. A person more or less under the influence of alcohol first loses his highest and latest-acquired attributes—reason, judgment, fine co-ordination, and binocular single vision. Only some have or retain the wit to be aware of the double vision, but it is commonly present if looked for. A partially inebriated man, when reading, often unconsciously closes one eye to avoid confusing the images. This type of diplopia is generally uncrossed and lateral—that is, an abducens defect is present. It seems unnecessary to assume that this double vision is due to the alleged intracranial anatomical disabilities of the sixth nerve. Some other factor causes diplopia, and I suggest that the common presence of a defect in one or more of the above essentials necessary for the maintenance of binocular vision, and an added toxin, together provide the factors causing the abducens to falter or fail in its function.

It is not uncommon for patients with certain muscle insufficiencies to complain of occasional diplopia, and to mention that they quite often read with one eye closed more comfortably than with the two eyes open. This is due to the difficulty they have in maintaining binocular vision—without any toxic drug. By closing one eye the single binocular vision effort is abandoned, and the covered eye wanders from the correct alignment.

In none of the 10 cases of diplopia here recorded was the paralysis complete. In some it was slight and in others marked, but all retained some power of abduction. The complete sixth-nerve paralysis following skull fracture or certain other cerebral lesions is a quite different clinical entity. It is probable that a toxic drug acting on an unstable binocular vision function is in many cases the cause of the diplopia and abducens paralysis following spinal analgesia.

Normally the adduction power of the two eyes is three times that of abduction, measured in prism dioptres. Esophoria is a common form of muscle imbalance. It is a latent convergent squint. To prevent the latent squint becoming obvious or manifest an extra tonic nerve impulse is constantly sent by the abducens to the external rectus of each eye to preserve parallelism of the eyes and avoid diplopia. If a spinal injection is given to a patient with esophoria, where the tonic contraction of both external rectus muscles is present in order to overcome the tendency to convergent squint, only a slight trauma of the abducens would block this extra tonic impulse which is required to maintain parallelism of the eyes, and the esophoria or latent squint would then become a manifest convergent squint with uncrossed double vision. Further, no theory that I am aware of has been put forward to account for the abducens paralysis being so commonly unilateral and only partial. That it is so may be explained by the probability that in esophoria when diplopia is established and the extra impulse required to maintain binocular vision has been abandoned, the second eye is often able to carry on monocular movements normally with the less-powerful stimulus.

Defects of the other previously mentioned component parts of the binocular system may also offer reasonable explanation of the frequent early production of diplopia. Examination of these functions before and after spinal injection may prove of interest. Of the 10 cases here reported 9 were examined after the patients considered that their eye condition had returned to normal. Each of them had some degree of esophoria varying from 1 to 5 P.D. at 6 metres, and none had exophoria.

Other Causal Theories

Various authorities hold different theories—some being directly opposed to others—regarding the cause of abducens paralysis following spinal injection. None take any note of the possibility of an unstable binocular vision function entering into the picture, and none of these opinions explain the great preponderance of unilateral paralysis.

These causal theories (Hayman and Wood, 1942) may be grouped under three headings:

1. Mechanical Causes.—One argument for this theory gains support from the fact that paralysis of the sixth nerve has followed ordinary spinal puncture without injection. Some suppose there is a pre-existing hypertensive condition of the cerebrospinal fluid, and the added injection provides the last straw, as it were. Others think the palsy is due to hypotension of the fluid from continued leaking after the puncture.

2. Toxic causes, relating chiefly to the drugs used.

3. Inflammatory Causes.—Supporters of this idea suppose a low-grade meningitis is set up by organisms of low toxicity, and they consider that ocular paralyses following the introduction of air into the ventricles uphold the theory. Hayman and Wood believe that the problem will be solved on the basis of a disturbance in the dynamics of the spinal fluid during spinal analgesia.

The common symptoms following lumbar analgesia are headache, pain in the neck, dizziness, photophobia—the latter two symptoms may be due to threatening or partial diplopia and diplopia. Though the abducens paresis may be partial, the convergent squint and limited outward movement of the eye are easily demonstrated. Homonymous diplopia is present, the distance between the images increasing as the test object is moved into the sphere of action of the paralysed muscle. A secondary deviation can be seen, and false orientation can be demonstrated by covering the unaffected eye. The headache appeared in the present cases between the second and fourth days, and had faded away in between five days and five weeks except Case 2, in which the headache persisted for about fifteen months. The diplopia appeared five to eleven days after the spinal injection, and persisted for varying periods—1, 2, 3, 4, 6 (2) weeks, 2 months, 3 months, and 14 months. Relief from headache and diplopia occurs gradually.

The prognosis is therefore ultimately good, though occasionally the complications may reactivate existing neuropath

conditions which may prove fatal (Blatt: quoted by Hayman and Wood, 1942).

Treatment

Sedative drugs are not very effective in treating the severe basal and general headaches, but keeping the head in the horizontal position gives some relief. The inhalation of oxygen, using the B.L.B. inhaler, has given definite relief in many cases. Galvanism for the paresis is of psychological value only.

For the diplopia, covering the deviating eye gives relief, but continued covering is not advised, as thereby any subconscious effort to fuse images and re-establish binocular vision will not be made. Dark glasses should be worn, with the outer third of the glass before the affected eye made opaque with, say, adhesive black paper. It is probable that muscle exercises and fusion-training may assist in re-establishing parallelism of the eyes and binocular vision in cases in which natural recovery is delayed.

Case Reports

Case 1.—Mrs. A., aged 36. Uterine operation, April 20, 1943—Mr. Douglas Robb. Spinal percaine 1/200, 1.5 c.cm. The patient suffered from bronchiectasis and was unfit physically. She became pregnant, and it was considered advisable to terminate the pregnancy. Headache appeared on the second day and persisted for three weeks. Diplopia was complained of on the fifth day after the lumbar injection and persisted for five weeks. The right abducens was paretic; a certain degree of abduction of the eye was possible. Homonymous diplopia, increasing to the right, and all the signs of paralytic strabismus were present. Two months later the patient felt completely well so far as the eyes were concerned, though she still showed 5 P.D. of esophoria. Probably this is her usual state of muscle imbalance. Right vision 6/6, Hm. 0.50; left vision 6/6, Hm. 0.50; fundi normal. This patient was in the habit of "standing" on her head and shoulders three times a day for about half an hour at a time in order to empty the bronchiectatic cavities. While in this position she constantly noted an easing of the headache and that the double vision seemed less marked. This statement suggests several possibilities. One of the male patients was later prescribed standing on the head and shoulders for a quarter of an hour three times a day as treatment. He reported no benefit.

Case 2.—Miss B., aged 22. Appendicectomy, April 20, 1943—Mr. D. W. Guthrie. Spinal percaine 1/200, 2 c.cm. Headache appeared on the third day and persisted for 15 months. Diplopia was complained of on the seventh day and persisted for about 14 months. The right abducens was partially paralysed, with all typical signs. April, 1944—a year later: The headache persisted, with occasional diplopia; 12 P.D. of esophoria with Maddox rod and tangent scale. Aug., 1944: Occasional headaches, but no diplopia; 5 P.D. esophoria present; right vision 6/6, no Hm.; left vision 6/6, no Hm.; fundi normal.

Case 3.—Mr. C., aged 40. Haemorrhoidectomy, Sept. 14, 1943—Mr. F. P. Furkert. Spinal percaine 1/200, 1.5 c.cm. Headache appeared on the third day and persisted for three weeks. Diplopia was complained of on the seventh day and persisted for three months. Right abducens partial paralysis was present with all typical signs. This patient tried standing on his head for 15 minutes three times a day without benefit. Sept. 27, 1944: Esophoria 2–3 P.D. present; slight congenital ptosis right eye; right vision 6/18, anterior polar cataract; left vision 6/6 with 1 cyl. vert.; fundi normal.

Case 4.—Mr. D., aged 65. Cholecystectomy, Dec. 19, 1943—Mr. D. W. Guthrie. Spinal percaine 1/200, 3 c.cm. Headache appeared on second day and persisted for two weeks. Diplopia was complained of on the eighth day and persisted for six weeks. Left abducens affected. Oct. 19, 1944: Esophoria 1 P.D.; right vision 6/6, Hm. 25; left vision 6/6, Hm. 25; fundi normal.

Case 5.—Mrs. E., aged 38. Cholecystectomy, May 22, 1944—Mr. D. W. Guthrie. Spinal percaine 1/200, 2.5 c.cm. Headache appeared on the fourth day and persisted for 10 days. Diplopia was complained of on the fifth day and persisted for three weeks. Right abducens paralysis. Aug. 8, 1944: Esophoria 3 P.D.; right vision 6/6, Hm. 0.75; left vision 6/6, Hm. 0.75; fundi and fields normal.

Case 6.—Mrs. F., aged 35. Appendicectomy, June 6, 1944—Mr. J. Fitzsimons. Spinal percaine 1/200, 2 c.cm. Headache appeared the second day and persisted for eight days. Diplopia was complained of on the sixth day and persisted for four weeks. Right abducens paralysis. Oct. 3, 1944: Esophoria, 1 P.D.; right vision 6/6, Hm. 50; left vision 6/6, Hm. 50; fundi normal.

Case 7.—Mr. G., aged 47. Haemorrhoidectomy, Aug. 15, 1944—Mr. J. Dreadon. Spinal percaine 1/200, 1.5 c.cm. Headache appeared on the second day and persisted for two weeks; diplopia complained of on the eleventh day and persisted for two months. Right abducens paralysis. Oct. 20, 1944: Esophoria 2 P.D.; right vision 6/6; left vision 6/6; fundi normal.

Case 8.—Mr. H., aged 57. Right inguinal herniorrhaphy, Aug. 18, 1944—Mr. A. Smith-Gray. Spinal percaine 1/200, 2 c.cm. Headache appeared on the third day and persisted for three weeks. Diplopia was complained of on the seventh day and persisted for six weeks. Right abducens paretic.

Case 9.—Mrs. I., aged 50. Operation for stone in common bile duct, Aug. 29, 1944—Mr. J. Fitzsimons. Spinal percaine 1/200, 2.5 c.cm. Headache appeared on the second day and persisted five weeks. Diplopia was complained of on the fifth day and persisted for six weeks. Left abducens paralysis. Oct. 18, 1944: Esophoria 1 P.D.; right vision 6/6, Hm. 1; left vision 6/6, Hm. 1; fundi normal.

Case 10.—Mrs. J., aged 46. Cholecystectomy, Oct. 2, 1944—Mr. D. W. Guthrie. Spinal percaine 1/200, 2.5 c.cm. Headache appeared on the second day and persisted for five days. Diplopia was complained of on the fifth day and persisted for two weeks. Right abducens affected. Oct. 21, 1944: Esophoria 4 P.D.; right vision 6/6; left vision 6/6; fundi normal.

Comment

Apart from the incomplete unilateral abducens paralysis no defects were noticed, except that Case 1 complained of "double hearing" for a time, and Case 3 had slight ptosis and anterior polar cataract, which were congenital in origin. Of the 10 cases reported 6 were female and 4 were male. The right abducens was affected in eight instances and the left in two. All the patients considered the headaches and double vision the most distressing part of their surgical experience, and some stated that the headache was almost intolerable. Ochaporski (1942) writes: "The aetiology of 282 cases of paralysis of the sixth nerve was . . . spinal puncture, 21. The frequency of sixth-nerve paralysis following spinal anaesthesia led Russian surgeons and gynaecologists to abandon this form of anaesthesia."

During the period under review spinal analgesia was administered to 2,021 patients. Ten of these developed paralysis of the sixth nerve. Though the number of cases is not large it indicates that abducens paralysis may be expected to occur once in every 202 cases after spinal analgesia. Premedication was given in all cases, and in a number of instances the lumbar injection was supplemented by the use of general anaesthetics—gas-and-oxygen, pentothal, and others.

Summary

Sixth-nerve paralysis and diplopia after spinal analgesia are discussed.

A theory is developed and a contributing factor presented to account for the diplopia and frequent early failure of the abducens in cerebral lesions, founded on the instability of the binocular vision function—phylogenetically a recently acquired attribute in man.

Ten instances are recorded of abducens paralysis following 2,021 cases receiving spinal analgesia.

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The Ministry of Education has issued an administrative memorandum on the position of speech therapists employed by local education authorities in connexion with their provision for children suffering from stammering and other forms of speech defect. For some years the work of the speech therapist has been regarded as primarily educational, and the majority of those employed by local education authorities have in fact been recognized or approved as specialist teachers under the Code of Regulations for Public Elementary Schools. Recently, however, there have been changes in the courses of training for speech therapists and in the work on which they are employed. In England the training is now given in four training schools, each of which is maintained by, or conducted in close association with, a hospital and comprises instruction in anatomy and physiology; neurology; pathology of the ear, nose, and throat; phonetics and speech therapy. It does not include training in teaching, in handling classes of children, or in school practice. Correspondingly the work which the speech therapists have to do has been decreasingly educational and more curative. It is carried out, in part at least, under medical supervision, and the only persons whose employment as speech therapists is approved by the Minister of Education are those who have been admitted to the *Register of Medical Auxiliaries*. In these circumstances the Minister proposes that as from Nov. 1, 1945, speech therapists employed by local education authorities shall be treated as members of the staff of the school health service and shall not ordinarily be regarded as teachers.

TYPHOID FEVER COMPLICATED BY BENIGN TERTIAN MALARIA

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The difficulties in making an early diagnosis of enteric fever are considerably increased if the patient is already suffering from other febrile diseases. We are here describing our observations on 34 patients with typhoid fever, because 10 of them also had benign tertian malaria. In two others the onset of malaria preceded that of typhoid fever by 17 days. Other conditions, such as sinusitis, recent T.A.B. vaccination, and suspected hepatic amoebiasis, caused confusion; while in two cases the question of kala-azar was raised.

The majority of our patients admitted to a Middle East hospital during the autumn of 1944 were involved in two small epidemics (see Table I). The first eight to arrive, all of whom suffered from a similar febrile illness, came from an Italian prisoner-of-war camp hospital. Benign tertian parasites had been found in the blood of two of them. All had received antimalaria treatment, but none had responded. The death of one of them from perforation of the small bowel finally revealed the true state of affairs. Investigations failed to show the source of this epidemic. Sixteen British patients from one mess in a malarious site were infected by a typhoid carrier—a native employed in the mess kitchen.

TABLE I.—*Distribution of Cases before Admission*

An Italian P.o.W. camp	14 (2 with concurrent B.T. malaria)
A static British unit	16 (8 „ „ „ „)
A British unit in transit	3 (No malaria)
Sudanese ghaffir	1 („ „)

Most of the recognized clinical manifestations of an enteric fever were present at some time, and they are classified in Table II. We propose to discuss only a few of them.

TABLE II.—*Chief Clinical Manifestations*

	Typhoid Fever (24 patients)	Typhoid with Concurrent B.T. Malaria	Total
Infections:			
Benign tertian malaria (concurrent only)	—	10	10
Miscellaneous:			
Typhoid stupor, severe	5	1	6 } 12
„ „ mild	4	2	6
„ exanthem	3	1	4
Circulatory:			
Bradycardia	14	3	17
Dicrotic pulse	6	6	12
Alimentary:			
Intestinal haemorrhage	3	0	3 (all died)
Perforation of typhoid ulcer	1	0	1 (died)
Meteorism, severe	2	1	3 } 13
„ moderate	8	2	10
Enlarged liver	8	1	9
„ spleen	10	5	15
Respiratory:			
Tonsillitis	5	0	5
Sinusitis and pharyngitis	2	3	5
Bronchitis	4	3	7
Bronchopneumonia	2	0	2 (terminal)
Pleural effusion	1	0	1
Urinary:			
Albuminuria (temporary)	4	2	6
Typhoid pyelonephritis	1	0	1

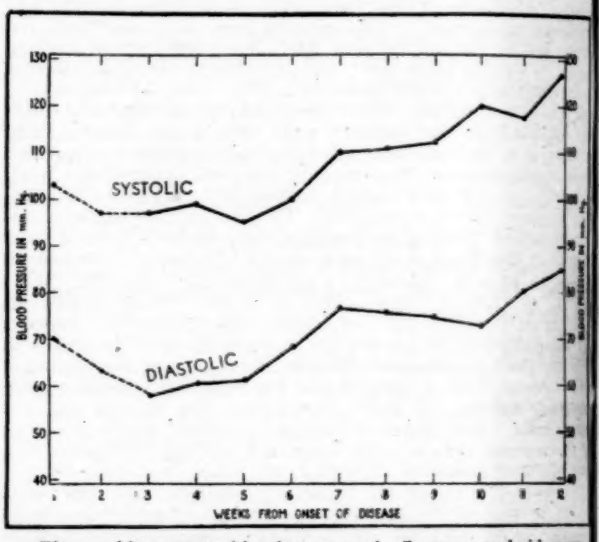
Clinical Manifestations

Fever.—Only on two occasions did the temperature charts suggest double infection—showing alternating hectic and remittent fever for the first four days. The other eight patients with both infections had an irregular remittent fever at the onset which became intermittent during a prolonged lysis (see Table III). Only one had a relapse (not malaria), whereas eight patients suffering from typhoid fever alone had relapses—which on three occasions exceeded the initial attack in length and severity.

TABLE III.—*Severity of Typhoid Fever in Relation to Concurrent B.T. Malaria*

	Severity					Fever	
	Mild	Moderate	Severe	Deaths	Total	Relapses of Fever	Average Duration Initial Fever (Days)
Typhoid fever only	12	6	3	3	24	8	22
Typhoid, with B.T. malaria concurrent	4	3	3	—	10	1 (Not malaria)	29
Total ..	16	9	6	3	34	9	24
No T.A.B. ..	—	—	—	1	1	1	—
T.A.B. vaccination incomplete	3	2	—	1	6	1	27

Circulatory System.—Relative bradycardia was present in 17 cases, only three of which had malaria. The pulse rate increased towards the end of prolonged fever and during relapses, and were unstable during convalescence. Twelve patients had a dicrotic radial pulse during the first week of illness. Blood pressures were always low during the first five weeks, returning to normal about the tenth week. The weekly average blood pressures of seven severe cases observed over a long period are shown in the accompanying Graph.



The weekly average blood pressure in 7 severe typhoid cases. There was no significant difference between the B.P. in typhoid alone (3 cases) and concurrent typhoid and B.T. malaria (4 cases). The averages were compiled from readings taken every third day.

Although apparently unrelated to fever, relapses, pulse rate, dicrotic pulsation, or concurrent B.T. malaria, blood-pressure readings proved useful as indices of the general condition and as guides during convalescence.

Respiratory System.—Nasopharyngitis and tonsillitis were common during the first three weeks. Two malarial patients were found to have frontal and maxillary sinusitis respectively. Typhoid fever—the third concurrent febrile disease—was recognized only when they failed to respond to treatment for the other two diseases. Subacute bronchitis occurred after the fourth week—sometimes as an exacerbation of chronic bronchitis. One patient developed a small pleural effusion associated with a relapse of fever.

Exanthem.—Only four patients had a recognizable enteric rash, but one or two doubtful maculae were seen on seven others.

Spleen.—Enlargement of the spleen was noticed on 15 occasions (44%). The incidence in doubly infected patients was 50%, and in patients with typhoid fever alone 42%. The sera of two non-malarial patients whose spleens were considerably enlarged reacted positively to Chopra's antimony test and to Napier's aldehyde test. No leishmania were found in smears from sternal bone-marrow (both cases) or the spleen (one case post mortem).

Liver.—The livers of nine patients were found to be slightly or moderately enlarged during the first five weeks of illness. Only one of these patients had both infections.

Fatal Cases.—Essential facts about the three patients who died are shown in Table IV. None of them were British. Not one of the doubly infected patients died, although they were febrile for a longer period than the average (see Table III). The warnings of Bhatnagar (1944) concerning the dangers of delayed diagnosis, lack of rest, and the administration of antipyretic drugs in typhoid fever are exemplified in the deaths of two Italian patients.

T.A.B. Vaccination.—One patient who died (Table III; Table IV, Case 3) received a full quota of T.A.B. vaccinations.

TABLE IV.—*Deaths*

Case	Age	T.A.B. Protection	Day of Death After Onset	Outline of Course of Disease	Necropsy
1	34	Incomplete (0·5 c.cm.) 1 month before admission	14	Gradual onset with diarrhoea. Treated for this and for malaria in camp. 11th day: small haemorrhage. 12th day: meteorism, abdominal pain and rigidity	Many typhoid ulcers in ileum. One ulcer had perforated—purulent peritonitis
2	28	No protection	23	Temperature normal by 6th day; relapse fever, 8th day; 2nd blood culture positive 12th day; intestinal haemorrhage 21st day. Napier's and Chopra's tests positive	Spleen showed typical typhoid changes. No Leishman–Donovan bodies seen
3	34	Full quota T.A.B.	45	Persistent high fever. 3rd week: meteorism. 20th day: haemorrhage followed by remission and improvement. Finally died in typhoid stupor	Many typhoid ulcers in ileum. Broncho-pneumonia

A second was partially protected; the third had had no T.A.B. vaccine. Table III shows the relation between the severity of the attacks of typhoid and T.A.B. vaccination state. The data do not provide sufficient grounds for any conclusions. Four British patients were admitted within three days of T.A.B. vaccination apparently suffering from severe reactions. *B. typhosus* was cultured from the blood taken on the second, third, third, and eleventh days respectively after administration of the vaccine. Apparently these were the only four patients who received the new alcoholized vaccine.

Diagnosis

In 28 out of 34 cases *B. typhosus* was cultured from the blood—taken as early as the second or as late as the 24th day of the initial fever. Here we should mention that it is not always possible to decide with accuracy the date of onset of typhoid fever, especially in cases with mixed infection. Apparently, recent or simultaneous administration of quinine, mepacrine, or pamaquin does not reduce the chances of obtaining a positive culture. The first blood culture was positive in 26 out of 28 cases. In the remaining two *B. typhosus* was cultured from the blood at the second and the third attempt respectively. Positive cultures of urine (1) and faeces (1) established the diagnosis in two other cases, whereas another was diagnosed post mortem the day after admission.

A diagnosis of typhoid fever was eventually made on three occasions in spite of repeatedly negative cultures of blood, urine, and faeces. These three patients, of whom two also had malaria, were the first arrivals from a British unit.

We attached little importance to the leucocyte counts, as the results were usually compatible with the diagnosis of either of the two prevalent diseases. "O" and "Vi" agglutination tests were not carried out systematically. No conclusions can be drawn from our incomplete results, which are therefore omitted.

Discussion

Medical officers still too often fail to consider the possibility of a double infection during the first week of illness. We have found that patients with uncomplicated B.T. malaria always improved on quinine. Tests of the urine of some of our patients with Tanret's reagent showed that quinine was being absorbed.

Our initial examination seldom revealed any signs suggestive of an enteric infection. Temperature charts gave us little help. The pulse rates of doubly infected patients were as a rule proportionally accelerated.

A typhoid rash was observed on only four occasions during the second week of disease. The finding of splenic enlargement was no help to diagnosis. So far we have not observed the blood-pressure changes during the last two weeks often enough to enable us to judge whether they are constant or specific.

Evidently the only two *early* distinctive signs of an enteric fever—progressive stadium incrementi and relative bradycardia—may both be absent, especially in patients simultaneously afflicted by some other febrile disease, such as B.T. malaria.

The value of taking blood for culture is diminished if it is postponed until the full enteric syndrome has developed.

Summary and Conclusions

We have recorded observations on 34 patients suffering from typhoid fever, three of whom died.

The early clinical diagnosis was hindered on 12 occasions by the simultaneous presence of or immediate recovery from B.T. malaria. None of those suffering from malaria died.

Blood pressures were low during the first five weeks and did not reach normal levels until the tenth week.

B. typhosus was cultured from the blood in 28 out of 34 patients.

Blood cultures should be carried out early and repeatedly while the cause of fever remains unknown.

Blood cultures should always be carried out when there is a relapse of fever, whatever the initial condition.

We wish to express our gratitude to Col. A. C. MacDonald, *M.C.*, T.D., our late commanding officer, for permission to publish these cases; and to Lieut.-Col. J. Gibson-Graham, officer in charge of the Medical Division, for his advice and help.

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Medical Memoranda

Neurological Complications in Cerebrospinal Meningitis treated with Penicillin

The following case, in which neurological complications arose after treatment with penicillin, may be thought of interest.

CASE HISTORY

On June 30 the patient, a boy aged 12, was "off colour"; he had no definite complaints and was not confined to bed. Next day he complained of headache and stiffness of the neck; his face was flushed. His parents thought it was a chill or influenza, and, it being Sunday, did not call for medical aid. The family doctor was called early in the morning of July 2 and found the boy unconscious but extremely restless, with flushed face, increased pulse and temperature, and neck rigidity. The patient was removed to hospital in an unconscious state. Lumbar puncture was performed; the fluid was very turbid and under pressure. The laboratory report was as follows: Cells, 45,000 per c.mm.; protein, 350 mg./100 c.cm.; chloride, 630 mg./100 c.cm. Gram film: polymorphs +++; Gram-negative intracellular diplococci. Meningococci were isolated on culture.

The patient was put on sulphapyridine treatment on July 2 and 3 (8 g. in 24 hours), but he continued unconscious and was extremely restless. The temperature remained in the region of 103° F. and the neck rigidity was more pronounced, almost amounting to opisthotonos. Strabismus with unequal pupils and a left facial paresis developed; knee-jerks were exaggerated and the plantar reflexes were flexor. There was incontinence of urine and faeces. Apparently he was not responding to sulphapyridine treatment, so penicillin was substituted on the evening of July 3. The first injection of 18,000 units was given intrathecally; the cerebrospinal fluid had now become very purulent and thick, and was withdrawn with difficulty. Subsequent injections of 18,000 units were given intramuscularly every 3 hours. The patient was still unconscious, and became extremely restless after the intrathecal injections.

July 4.—Lumbar puncture; fluid less purulent but still under pressure. Laboratory report: Cells, 3,000 per c.mm. Gram film: cells, polymorphs; no organisms seen. Culture, sterile. Penicillin 18,000 units was given 3-hourly, once intrathecally. The treatment was continued 3-hourly for 5 days, three injections being given intrathecally, the remainder intramuscularly.

July 5.—The patient regained consciousness and became quieter. The neck rigidity persisted, but the temperature had dropped to 99.4° F.

July 6.—Temperature normal; patient able to talk rationally and take nourishment. The strabismus and inequality of pupils disappeared and the facial paresis cleared up.

July 8.—The patient received the last injection of penicillin at 4 p.m., and by 8 p.m. he developed a marked oedema of the anterior aspect of the neck, extending from the root of the neck to the thyroid cartilage. The temperature had risen to 99.2° F. The neck rigidity was still present, but was much less marked. Sulphadiazine 1 g. was given 4-hourly, and by the next morning the oedema had subsided.

July 9–15.—The patient steadily improved; the neck rigidity became gradually less severe and the temperature was normal, but on July 10 a flaccid paresis of the left arm developed, affecting the trapezius, deltoid, biceps and triceps, and forearm muscles, with a wrist-drop. The muscles were painful to touch or on movement. The arm was abducted, placed on a pillow, and an electric pad applied. From July 10 to 15 the condition improved and function returned to the trapezius, forearm muscles, and extensors of the wrist; the deltoid and biceps remained paralysed. During the evening of the 15th the patient suddenly cried out, and it was discovered that he had lost the power of speech. There was a right facial paresis; the pupils reacted to light and accommodation; the tongue deviated to the right side; and a spastic paresis had developed in the right leg, with exaggerated knee-jerks, sustained ankle clonus, and a doubtful extensor plantar response. The temperature rose to 99.8° F.; pulse 104. Sulphadiazine 1 g. 4-hourly was given, but within 4 hours the temperature had dropped to normal, the power of speech was restored, and the right facial paresis and the spastic paresis of the right leg had disappeared. The flaccid paresis of the left upper arm remained. The exaggerated knee-jerks, extensor plantar, and ankle clonus had gone.

July 16–23.—General progress was maintained; temperature remained normal, full movement of the neck was obtained, and the only remaining paresis was in the deltoid and biceps of the right arm. He was discharged home on July 23.

The patient was seen on July 31 by the orthopaedic surgeon, who recommended massage and electrical treatment, and suggested that the prognosis for full recovery was very good.

After three months' massage and electrical treatment the deltoid and biceps muscles fully recovered. He has been discharged from the orthopaedic hospital and is completely well, and there is now no evidence of any neurological lesion.

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Myxoedema induced by Thiouracil

The reported harmful effects of thiouracil have included various transient symptoms, granulocytopenia, and purpura and other rashes, but examples of gross depression of thyroid function are rare. In the following case clinically obvious myxoedema appeared after a total dosage of 39.8 grammes in 4 months.

CASE REPORT

About nine months after the birth of her first baby a woman aged 24 complained of being easily tired. Her hands were moist and tremulous and her eyes staring. A diffuse enlargement of the thyroid gland was present (neck circumference, 13¾ in.). Her weight, usually over 9 st., had fallen to 8 st. 2 lb. A clinical diagnosis of primary hyperthyroidism was made and she was given thiouracil 0.6 g. daily for one week and then 0.4 g. daily for two weeks. White cells at onset of treatment numbered 7,200 per c.mm. She left hospital after three weeks and continued on 0.2 g. daily for one month, feeling very much better. White cells, 10,800. She did not attend hospital during the next two months and obtained her treatment elsewhere. Dosage was 0.4 g. daily.

When next seen it was at once obvious that a striking change had occurred. Her face was puffy and she looked coarse and dull. Her voice was deep, and her hair was falling out. Her fingers were swollen so that her ring could not be removed. She complained of aching pains in the limbs and felt the cold greatly. Her weight had increased fairly suddenly by 1 st. and the neck circumference was 15 in. Menses remained unchanged at 4/28. The heart rate was around 50; B.M.R., – 20; plasma cholesterol, 330 mg. per 100 c.cm.; white cells, 8,500.

Cessation of thiouracil and administration of thyroideum siccum 1/2 grain twice a day brought her back to normal appearance and a feeling of well-being in about three weeks.

Chase Farm Hospital, Enfield. C. ALLAN BIRCH, M.D.

Further regulations permitting certain persons not covered by the regulations made under the Nurses Act, 1943, to use a title including the word "nurse" have been made by the Minister of Health and the Secretary of State for Scotland. Persons who are 18 or over, and are gaining experience under trained nurses in a hospital or institution with a view to admission to the roll of assistant nurses as "intermediate" assistant nurses, may call themselves "probationer assistant nurses."

Reviews

METHODS OF APPROACH IN LIMB SURGERY

Extensile Exposure Applied to Limb Surgery. By Arnold K. Henry, M.D., M.Ch., F.R.C.S.I. (Pp. 180; illustrated. 30s. plus 7d. postage.) Edinburgh: E. and S. Livingstone. 1945.

Mr. Arnold K. Henry's publications on novel and ingenious methods of approach in surgery are well known, and owing to the sound anatomical principles upon which they are based they have been much utilized in the practice of the art; further, the originator's claims for them have not proved false. He has now collected and elaborated such of this material as applied to limb surgery in a book entitled *Extensile Exposure Applied to Limb Surgery*, a somewhat clumsy title, though it is difficult to see how the author could otherwise have indicated its scope. What "extensile exposure" means he reveals in the preface: "Exposure that will vie effectively with the 'great arsenal of chance' must be a match for every shift, and therefore have a range *extensile*, like the tongue of a chameleon to reach where it requires." This, then, indicates the nature of the contents of a book for which we have nothing but praise. Many of the exposures described are quite novel, and the anatomical and surgical reasons for their choice are made abundantly clear and further emphasized by a large number of excellent drawings. The reproduction of these upon art paper has allowed them to keep all their original quality, and puts the book into the high grade of medical publications which we come to associate with the name of E. and S. Livingstone, Ltd.

In the effort to make his points easy to understand and remember the author, professing his inability to share the artist's gift of recalling "the un-Euclidean visage of anatomy," has not disdained to use whatever crutch or simile or dodge has proved its worth, such as "satellites, loopholes, half sleeves, shoulder straps, cloaks, seams, leashes, bucket handles, lids, sandwiches, Vs, and manual mnemonics."

So far we agree, but it perhaps seems a little incongruous to find mixed up with all this copious quotations from the classics and philosophers, for the style of writing is what may be somewhat loosely described as "literary." One cannot fail to be impressed by the author's erudition, or by the aptness of his quotations; we certainly would not wish to criticize the style, but we may be allowed to comment. We recognize that there are differing schools of thought as to whether a scientific writing should aspire to literary merit, and come down heavily in favour of it, and Mr. Henry; but even so we cannot help wondering if the following footnote (there are others like it) does not savour rather too strongly of pedantry. "Recognise, recognize, mobilise, mobilize, etc. The *Oxford English Dictionary* is strong for 'z.' But Pater, who was 'Oxford,' allows the 's'—like Quiller-Couch of Oxford *and* Cambridge. I shall abide by Kent's uncompromising verdict (*King Lear*, Act II, Sc. 2). If the surgeon faced with the necessity for extensilely exposing the femur is really concerned about the "whoreson zed! this unnecessary letter," any zany can remind him with zest (the operation we hope being successfully completed meanwhile) that descriptive medicine would be seriously handicapped without its zygote, zymotic, ziphi, zygoma, to say nothing of the difficulties in his zoological studies before the student reaches his zenith. Even Mr. Henry's compositor could not entirely discard his font of "zeds," nor his most skilful artist, Miss Zita Stead, her name. But perhaps we are wrong; anyway this book is a notable contribution to surgical literature.

PATHOLOGY

Pathology. An Introduction to Medicine and Surgery. By J. Henry Dible, M.B., F.R.C.P., and Thomas B. Davie, M.D., F.R.C.P. Second edition. (Pp. 946; illustrated, including 8 plates in colour. 45s.) London: J. and A. Churchill. 1945.

The publication of a second edition of Dible and Davie so soon after the first is ample evidence of its popularity with medical undergraduates in this country. It provides a straightforward and clearly written account of the views of the majority of British pathologists. It is not overweighted with histological and cytological minutiae which have neither interest nor educational value for the clinical student. On the other hand, the

correlation between changes in structure and clinical signs and symptoms is heavily stressed.

The chapters dealing with the acute infections are particularly instructive. The senior author's long experience as a microbiologist has obviously enabled him to strike a true balance between the bacteriological and immunological problems presented by these diseases and the structural changes they cause in the tissues. This broad treatment of infection in a textbook of pathology not only stimulates the student's interest but is of very considerable educational value.

The illustrations are well chosen, the diagrams are instructive, and the book is neither heavy nor cumbersome. It has obviously established itself as a reliable and well-planned standard textbook.

TWO BOOKLETS ON NUTRITION

Nutrition. By W. R. Aykroyd, M.D., Sc.D. Oxford Pamphlets on Indian Affairs, No. 21. (Pp. 32. 9d.) London: Oxford University Press.

Manual of Nutrition. By Rose Simmonds, S.R.N. (Pp. 90. 1s.) London: Cassell and Co. 1945.

Nutrition, by Dr. W. R. Aykroyd, is No. 21 of the Oxford Pamphlets on Indian Affairs. In it the author gives details of India's food production and the composition and defects of typical Indian diets. He points out that the diet of the mass of the population is grossly deficient in quality and usually in quantity, and that much of the ill-health and disease in the country can be attributed to malnutrition. The economic aspects of nutrition and the population problem are briefly discussed, and finally methods for improving the nutrition of the country are suggested. Malnutrition in India cannot be prevented by teaching the masses what to eat when it is not available. Developments and changes in agricultural production are needed to make the food supply satisfactory, and economic reform must ensure that all are able to buy an adequate diet. It is a pity that this booklet is printed on such poor-quality paper.

The little book by Miss Rose Simmonds, which was written at the request of the British Red Cross Society for the use of its members, may be described as nutrition in a nutshell. The treatment is essentially practical. After describing the different food elements, the author gives the composition of the common foods and their place in the diet. There are also chapters on suitable diets for infants, school-children, adolescents, sedentary and active workers, and expectant and nursing mothers. At the end of the book is a comprehensive table giving the composition and vitamin content of common foods. Useful information is also given on the best way to cook foods so that the vitamins are conserved as much as possible. The style is brief and to the point, and the book is free from technical jargon, so that it can be understood by the layman without previous knowledge of the subject. A useful handbook for the mother of a family.

A VIEW OF SEX

A Psychologist Looks at Sex. By Howard L. Philp, Ph.D. (Pp. 110. 8s. 6d.) London: Hutchinson's Scientific and Technical Publications.

In dealing with sex it is very difficult not to be either ribald or smug, and in published works on the subject there is practically always a tendency to smugness. The present book is no exception to this rule. The author starts with the premiss, to which most people will adhere, that the only satisfactory situation in which sex can be successfully practised and enjoyed is in monogamous marriage with the foundation of a family as its chief end. He then proceeds to bring evidence to support this premiss, but the reader cannot help feeling, if he is really detached, that the evidence is highly selective and that the whole tone of the argument is didactic rather than strictly scientific.

This is one of the few books which does not cloak its didactic nature by a pseudo-scientific discussion, with diagrams, of the anatomy and physiology of the sex organs, and this omission is certainly to be commended. The chapter on the influence of the personal attractions and repulsions of early childhood on the subsequent capacity of the individual for love is admirable, but the author's criticism of the work of Freud lacks depth of understanding.

As an exposition of the ideals to be aimed at in the love life of the normal individual this volume is excellent; but it is doubtful if there is really a sufficiently deep and sympathetic understanding of the difficulties which beset so many people in modern society, where economic and social factors make early and continuously happy marriage so very difficult.

Notes on Books

To assist doctors, nurses, and other persons looking after the health of displaced persons, U.N.R.R.A. has produced a comprehensive *Medical Manual*. The first part gives general information about U.N.R.R.A. and its health organization; the second deals with the health problems of displaced persons; and the third contains eight chapters on such special problems as nutrition, maternity and child welfare services, communicable diseases, immunization, and disinfestation. The *Manual* is available in the library of the B.M.A.

Accompanying the annual report of the British Council for 1944–5 comes an interesting booklet outlining the work of its Science Department, whose activities are directed by Mr. J. G. Crowther under the general advice of a committee of distinguished men, with Sir Henry Dale as its chairman. The Science Department has panels for medicine, engineering, and agriculture. A printed scheme of the organization shows that medicine has an impressive place in it, under the directorship of Dr. N. Howard Jones. The most familiar product of the department's activities is the *British Medical Bulletin*, the function of which is to record for the benefit of foreign readers surveys of current British medical literature.

An interesting picture of efforts to combat microbic infection in the U.S.S.R. during the war is given in *Microbiology and Epidemiology*, by various authors, translated from the Russian by Dr. H. P. Fox (London: Medical Publications Ltd.; 15s.). It is a volume in a series recounting the "Achievement of Soviet Medicine in the Patriotic War" and was published in the U.S.S.R. in 1943: its rather propagandist flavour was therefore designed originally for home consumption. The principal subjects dealt with are immunization against typhus, cholera, dysentery, and tetanus, the destruction of disease vectors, the use of bacteriophage in preventing or treating cholera and gas gangrene, and among chemotherapeutic agents "phytoncides," gramicidin, and penicillin. Like many papers in the *American Review of Soviet Medicine*, which has been a valuable source of information about medical progress in the U.S.S.R., the accounts given in these chapters are only of a general nature, with neither the technical details nor the statistical data on which to base any serious judgment. The prevailing note of optimism consequently awakes a rather subdued echo in the reader's mind, particularly in connexion with some of the newer and more peculiar forms of treatment advocated.

The Pioneer Health Centre has issued from 8K, Hyde Park Mansions, Marylebone Road, N.W.1, a pamphlet (price 1s.) bearing the title *Observations on the Population Question*. This is a memorandum presented to the Royal Commission on Population by Dr. Innes H. Pearse, and the facts given and the opinions expressed have been drawn from studies of some 1,500 families that have passed through the Health Centre at Peckham. Part I leads to the conclusion: "No bigger mistake could, in our opinion, be made than to conclude that contraceptives are the predominating *cause* of the fall in the birth rate. Contraception is a method; the fall in the birth rate is the consequence of some deeper underlying factor." Then follows a discussion of methods for family limitation and conditions operating to limit the size of the family, and from this the general conclusion is drawn that the cause of a falling birth rate is a matter for direct experimental research by trained scientists searching for the natural social conditions which will promote parenthood.

The *Yorkshire Post* has described a plan put forward by the Medical Faculty of the General Infirmary at Leeds to provide, as a 1939–45 War Memorial, a model "health village," within easy access of the city, for general and surgical cases in need of long-term treatment. The proposal is to expand the original long-stay hospital idea into a country village scheme, with hostels for after-care, houses and flats for doctors and nurses and other staff, administrative offices, shops, schools, workshops, and market gardens, and other facilities for rehabilitation and vocational training; also a village hall, cinema, and theatre for entertainment, as well as a single general hospital for treatment. The Medical Faculty recommends provision for about 850 patients, adults and children—500 in the hospital and about 350 outside, which would mean a village population of between 2,000 and 3,000. The Yorkshire Regional Hospitals Council set up a subcommittee to investigate and discuss the problem, and the "health village" outlined is its suggestion for meeting the need in a country site reasonably near Leeds.

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CONTROL OF MALARIA IN THE TROPICS

The part that research is likely to play in the future in the development of our Colonies is very clearly brought out in the recently issued official pamphlet entitled *Colonial Research, 1944-45*. It includes the second annual report of the Colonial Research Committee, which, among other things, records the findings of the Colonial Medical Research Committee. This committee, constituted jointly by the Secretary of State and the Medical Research Council, with Sir Edward Mellanby as chairman, deals in its report with two points of outstanding importance relating to malaria. These are the extent to which the new insecticide D.D.T., of which field trials have recently been made under the direction of the committee in British Guiana, is likely to influence malaria control, and the question how far the development of new synthetic drugs should affect the policy of cinchona cultivation in the Colonies. It is pointed out that, while D.D.T. will undoubtedly provide a very powerful weapon against malaria, it is not likely that the promise shown by it or any other like substance will as yet justify relaxation of orthodox and tested antimalarial measures, though a careful review of these should be made. This conservative estimate of the part likely to be played by D.D.T. is apposite at the present time, when lack of knowledge of the intricate and varied nature of malaria control may give rise to exaggerated ideas of what can be immediately accomplished. What changes this new and remarkable insecticide may bring about can in fact be left to those who have already done so much to develop methods of control.

The second of the points referred to brings to the fore important matters of policy, and a difficult decision has to be made. What should be done about cinchona cultivation? The reason for growing it at all at present is that in spite of the proved efficacy of atebrin, and now of the new compound paludrine, quinine may still have a place in the treatment of malaria and still be the safest drug for general employment without medical supervision. That atebrin could replace quinine even for the second purpose is not so debatable as was at one time thought, for experience has tended to lessen the likelihood of untoward effects from it. But it is still possible that Governments and sanitary authorities may wish to be on the safe side and so prefer quinine for general distribution. There is even more at issue than this, for a quite different policy is required depending upon whether the cultivation of high-grade cinchona varieties most adapted for the manufacture of the pure alkaloid quinine is to be encouraged, or that of quite other varieties if the view is accepted that what is mainly required is not pure quinine but some form of cheap product containing the total alkaloids of cinchona. In the latter case it is usual to elect for some minimal percentage of quinine itself, and this may not be easy to conform to if the low-grade quinine-yielding cinchonas are too exclusively cultivated. Again, how far is the view correct that what is wanted is above all a cheap product? Preparations of the total alkaloids can scarcely but be looked upon as an inferior article even by the poor, and it might be wiser for this and other reasons to elect for the pure drug with the cheapest possible production. It would seem, therefore, in view of so much uncertainty, that the committee has been wise to recommend a scheme of research and development in relation to the growing of cinchona in the Colonial Empire based on East Africa. In this way it is hoped to work out what the proper production policy should be.

The right policy for malaria control is also discussed in the report of the fifteenth annual meeting of the Ross Institute Industrial Advisory Committee. Dr. George Macdonald, the Director of the Institute, refers in this to the remarkable scheme carried out lately by the Yellow Fever Control Service for eradicating *Anopheles gambiae* in Brazil. It was started in 1939 and was based on the principles used in the control of yellow fever. By September, 1940, nineteen months later, this dangerous mosquito, which had invaded the New World from Africa, had been wiped out of Brazil—well worth the two million dollars spent on the project. A similar campaign has now been started in Egypt over 300 miles or more of the Nile Valley, and Dr. Macdonald foresees similar operations in Mauritius, the Seychelles, and other places where conditions are favourable. He appreciates the many valuable applications of D.D.T., but points out that it will not be a panacea: the greatest difficulty in mosquito control is the maintenance of adequate supervision.

Still another important contribution bearing upon research into malaria and its control, this time in India, appears in the section recording the work of the Malaria Institute of India in the report for 1944 of the Scientific Advisory Board, Indian Research Fund Association. The headquarters of the Malaria Institute are at Delhi, but its activities extend throughout India, and it advises upon, initiates, and carries out malaria survey, research, and control, and at the same time acts as a training centre and teaching school. It publishes its own journal—one of the few wholly concerned with malaria—has its own complete reference library and collections, issues technical bulletins on different aspects of malaria, and generally acts as a permanent centre for malaria work in India. During the war it has played an active part in providing and training officers and personnel for the large number of malaria units engaged in control work with the military authorities in India, Burma, and other countries in the Middle East. As the report notes, the carrying-on of its normal peacetime functions has been much curtailed, and research has been confined largely to that on insecticides, repellants, protection by impregnated clothing and netting, and other problems of immediate military importance. Among more normal peacetime items, however, is a reference to a critical statistical study of the present method of forecasting the occurrence of epidemics. These violent manifestations of malaria with their heavy mortality are a feature of

North-West India, and to be able to foretell their onset, and so enable early arrangements to be made for distribution of quinine and various forms of public assistance, is an important aspect of malaria control. The practical bearing of such research is a good example of the variety of ways in which the control of malaria must be tackled. It also serves to illustrate the need for specially trained workers in various branches of research. It will not be inappropriate in this connexion to turn back to the recommendations made by the Colonial Medical Research Committee; it points out that in regard to medical research in general the way is now clear for a rapid and systematic attack on the major medical problems of the Colonies. But it feels bound to point out that research cannot be prosecuted effectively in this field without a regular flow of skilled scientists, and expresses the hope that, to meet this need, energetic steps will be taken in co-operation with British universities. These remarks of the committee refer especially to the shortage of entomologists; but malaria control is far from being merely an entomological problem, and there is great need also for the trained medical observer—a fact which is sometimes apt to be overlooked.

EPIDEMIC RISKS IN EUROPE

Of the international quarantine diseases, yellow fever has been absent from Europe for very many years and cholera since 1925. There remain smallpox, plague, and typhus. The head of the Epidemics Control Branch of U.N.R.R.A., Dr. George Stuart, who was formerly with the Colonial Medical Service in Palestine, at a recent Press conference drew an epidemiological map of Europe, pointing out the main epidemic risks. Smallpox at present is to be found only in Italy; in Dr. Stuart's words, it has been "largely vaccinated out of Europe." Plague is to be found only in Malta, although so long as ports in the Suez Canal, West Africa, and Palestine remain plague-infected there is always a threat to the European coast of the Mediterranean. Typhus has been practically eliminated from the entire area lying west of a line drawn along the Elbe to the Adriatic. The black spots of residual infection east of the line are Slovakia, east and south, Hungary, in the north, Bosnia, Carpathian Russia, Poland, Rumania, Bessarabia, and Bukovina. Other countries affected to some extent are Bulgaria and Greece.

Of other epidemic diseases normally endemic in all countries Dr. Stuart mentioned diphtheria, the incidence of which is still high in France and Holland, and highest in Germany, particularly in Berlin. In Germany not only is the incidence abnormally high but there is an increased proportion of severe infections, together with a shift of the age groups affected from those under 15 to those over 15. Last year 30% of the deaths from diphtheria in Rostock in Germany were of persons over the age of 15. In a recent article in this *Journal*[1] Dr. Stuart, analysing the available figures, concluded that since 1941 the incidence of diphtheria in Northern and Central Europe has increased to an extent unparalleled since control of the disease became possible: it has become "the leading epidemic war disease on the European continent, both in morbidity and in mortality." The experience of England stands out in strong contrast to that of France, Germany, Belgium, the Netherlands, and Norway; in 1944 the diphtheria morbidity and mortality in England and Wales were the lowest ever recorded.

Scarlet fever is not now obtrusive; there is no change in type or gravity of the disease. Typhoid fever has greatly increased in the western countries of Europe and in Finland. There is a typhoid epidemic in Germany, where there was thirty times the normal incidence in September, and in Poland, where 46,800 cases were notified in the first nine months of the present year—a notification rate of about 1.3 to the 1,000 of population. The cause is the destruction of the water supplies and sewage disposal systems, together with inadequate nutrition in overcrowded and bombed areas. Dysentery is more prevalent than usual; this must be said of Great Britain as well as of Norway, Germany, and Austria. In Berlin and Vienna the case mortality is said to be 20%. Poliomyelitis was recently prevalent in Belgium and Bohemia, but there has been no extension to neighbouring countries; the incidence of cerebrospinal meningitis continues to decline. The last wave of influenza was in the winter of 1943–4: there has been no pandemic since the one which occurred at the end of the last war. Of endemic diseases the tuberculosis incidence has much increased in many Continental countries. It is especially high in Greece, Yugoslavia, and Italy. In Italy it has been found that from 2 to 4% of cases examined by mass miniature radiography need further investigation, as compared with something like 3 or 4 out of every 1,000 in England. Syphilis has shown a large increase in most countries—in Germany a twenty-fold increase. It is declared that control of venereal diseases has been set back nearly twenty years as a result of the war. Another endemic disease, malaria, is the leading cause of illness in a large part of the Mediterranean basin, and is of epidemic proportions in Greece.

Dr. Stuart concluded his survey by making three points. The situation in Europe to-day is not nearly so disastrous as it was at a comparable period after the war of 1914–18. No communicable disease at present has an incidence which constitutes a menace to international health. But the "hump" has not yet been passed, and it is impossible to forecast whether one or other communicable disease may not yet assume epidemic form during these winter months. Meanwhile U.N.R.R.A. is garrisoning devastated Europe with medical supplies. Up to the end of September this organization had shipped over 1,000 tons of medical and sanitary equipment and material, of a value of £4,387,000, to Albania, Czechoslovakia, Greece, Italy, Poland, and Yugoslavia, and to the U.N.R.R.A. camps. To combat epidemics in particular it included 100,000 doses of antiplague vaccine to Italy, 1,000 doses of antiplague serum, and 750 doses of antiplague vaccine flown to Belgrade in view of a threatened epidemic there, 400,000 sulphaguanidine tablets flown to Athens for use in a serious outbreak of dysentery, and 4,000 vials of an antimony compound to be employed against kala-azar in Yugoslavia. Under the new international sanitary conventions signed early in 1944 U.N.R.R.A. has temporarily assumed responsibility

[1] *British Medical Journal*, 1945, **2**, 613.

for exchange of epidemiological information, and for Europe this is centred in Dr. Stuart's branch of the Health Division in London. By arrangement with the International Health Office in Paris, the League of Nations, the various Governments, and the U.N.R.R.A. missions (staffs of doctors, nurses, and sanitary engineers in five countries, and medical liaison officers in four others) a constant stream of information is now coming in for analysis and being sent out again to Governments.

A LITTLE OF WHAT YOU FANCY

Some animals eat a limited range of foodstuffs, and it may well be supposed that they have an inherent preference for those specially suited to their constitutions. But rats are omnivorous, and experiments such as those of Gaunt, Irving, and Thomson[1] have shown that they may be induced to eat a diet so inadequate that a colony may come near to dying out in a few generations. Are rats that have a choice of food protected by an instinctive appreciation of nutritive values?

L. J. Harris and colleagues[2] at the Cambridge Nutrition Laboratory made a series of carefully controlled experiments on the relation of choice of food by rats to their requirements. Normal rats, given a choice between three jars of food, one of which supplied aneurin, ate about equal amounts of all three. But after a short time rats that had been depleted of vitamin B_1 ate the aneurin-containing food almost exclusively. However, rats depleted of vitamin A or D did not choose the food that would supply the vitamin they needed. Harris concluded that the rats were guided in their choice of food by the benefit felt shortly after eating aneurin, and that they had no instinct to lead them to eat foods the benefit of which would be perceptible only after some time. This conclusion is supported by Kon's experiment,[3] in which rats offered casein and sugar (or starch), separately, ate so little protein that they did not grow; whereas rats given casein and sugar mixed grew well. This interpretation of the choice made by rats puts it on a level with the refusal by human beings of foods "that do not agree with me." It is one stage beyond the consumption of stimulants for the sake of the immediate effects, despite a "hangover" within a period short enough for the *propter hoc* to be appreciated. Richter's experiments on the choice of food by rats with endocrine deficiencies admit of the same interpretation. After adrenalectomy rats consumed about fifteen times as much sodium chloride as before[4]; after parathyroidectomy rats consumed large amounts of calcium salts and avoided sodium phosphate.[5] After incomplete pancreatectomy[6] rats promptly increased their consumption of carbohydrate, protein, and vitamins of the B group. But after a variable period the consumption of fat was nearly trebled and that of carbohydrate reduced to under one-half, while that of protein was increased by about a half; the consumption of the B-group vitamins, with the exception of choline and nicotinic acid, was then about twice the preoperative level. After operation the rats were lethargic, but when they began to eat large amounts of fat they became active again, and they no longer passed large quantities of urine or drank corresponding amounts of water. Owing to possible errors of technique, Richter and his colleagues did not consider that the change of appetite for B-group vitamins was more than suggestive. But this increased appetite is in agreement with experiments in which depancreatized dogs required more insulin when these vitamins were withdrawn from their diet.[7]

A comparable adjustment of diet to requirements was noted by Higgins.[8] Young rats being treated with promin (promanide), used in the experimental therapy of tuberculosis, developed a craving for aneurin, riboflavin, and pyridoxine. An increased intake of these vitamins was found to counteract the toxic effects of promin. It may be supposed that in all these experiments the rats learnt from experience. The benefits of a high-fat diet after pancreatectomy are less obvious than those of high-salt and high-calcium diets after adrenalectomy and parathyroidectomy, and the rats, in consequence, took longer to adapt their diets. There remain, however, the experiments quoted by Richter[9] in which rats given a choice of nearly pure foods grew as well on their own choice of food as on McCollum's diet, although they ate 15 to 40% less. This recalls the experiments of Davis,[10] showing that babies, judged by their health and development, made a highly satisfactory choice from a wide range of foodstuffs; one baby with rickets chose cod-liver oil until the rickets was healed.

Whether based on instinct or experience, the selections made by the rats were sound. Patients with Addison's disease crave for sodium chloride—like adrenalectomized rats. In human nutrition practice has been so far ahead of theory, until recent times, that we may wonder whether we should not pay greater attention to personal choice of food. The almost universal desire for meat may be evidence that meat has some nutritive value that we do not as yet appreciate. But in human choice the mouth is so much more important than the metabolism; human beings are so influenced by habits, prejudice, and wrong theories that these preferences must be viewed with suspicion. The Oriental's preference for polished rice—and beriberi—is a case in point. Even if preferences are sound they can but point to a possible goal. For the present most of us must eat what we can get, not what we would like.

1 *J. Hyg.*, Camb., 1939, **39**, 91.
2 *Proc. roy. Soc.*, B, 1933, **113**, 161.
3 *Biochem. J.*, 1931, **35**, 473.
4 *Amer. J. Physiol.*, 1936, **115**, 155.
5 *Amer. J. med. Sci.*, 1939, **198**, 9.
6 *Johns Hopk. Hosp. Bull.*, 1945, **76**, 192.
7 *Endocrinol.*, 1945, **36**, 227.
8 *Amer. J. med. Sci.*, 1944, **207**, 239.
9 *Psychosomat Med*, 1941, **3**, 105.
10 *Amer. J. Dis. Child*, 1928, **36**, 651.

AFTER-CARE OF HEAD INJURY CASES

The Nuffield Provincial Hospitals Trust, the Ministry of Pensions, and the Radcliffe Infirmary, Oxford, have had under consideration for 18 months the devising of a scheme for the after-treatment of head injury cases. The interest of the Nuffield Trust and the Radcliffe Infirmary in this question derives from the work done at the Military Hospital for Head Injuries at St. Hugh's, Oxford. The interest of the Ministry of Pensions flows from its responsibility for the treatment of disability arising from the war, and includes cases of head injury treated at special centres of the Emergency Hospital Scheme and in military hospitals. As a result of modern neurosurgery and chemotherapy, men with brain wounds have survived who formerly would have died. Many have regained much of their lost brain function; speech, sight, and mental faculties have returned, paralysed limbs have moved again. But recovery is often incomplete, and sometimes the permanent damage is severe. Inability to cope with the conditions of civilian life, coupled with the fear of being a drag on their families, causes such men anxiety, disappointment, and frustration. If they are to make their contribution to the community within the limitations imposed upon them their physical, mental, and vocational capacities for work must be assessed while they

are in hospital. Later they must have simple training in various forms of work, more advanced and more satisfying than occupational therapy alone can afford. The gravely disabled must be given a permanent centre in and around which they can live with their families under the protection they need.

The following steps are now being taken to cope with this problem. In addition to the routine treatment provided by the Ministry of Pensions, there is need for research into the best methods of rehabilitation, and into other problems of head injuries. To carry out this research the Radcliffe Infirmary has, with the aid of £20,000 from the Nuffield Trust, appointed a neurologist, Dr. W. Ritchie Russell, who will work in close touch with the departments of Oxford University which are already studying lesions of the nervous system. One of his primary duties is to give special assistance and advice to the Ministry, so that the latest methods of treatment may be made available for pensioners.

TUBERCULOSIS IN WALES

Already the chief medical officer of the Welsh National Memorial Association is contemplating a resumed decline in the death rate from tuberculosis. During 1944 Wales was probably the only country in Europe able to report a substantial fall between the years 1938 and 1944, from 812 deaths per million to 715. A large part of this tactical success in the campaign against tuberculosis must be due to Dr. Norman Tattersall's Association, and his annual report this year is, as always, a welcome exception to the dullness of the average unimaginative summary of local authority work.

We are not surprised to hear that the supply of nurses is the main preoccupation, and the tragedy of 328 beds unoccupied through shortage of staff, compared with 777 patients awaiting admission, must be paralleled in other areas besides Wales. The tuberculosis officers are not any less overworked. New work connected with silicosis and disabled persons, the care of Norwegian seamen and the examination of wartime nursery staffs, are fresh responsibilities added to their normal dispensary work, which goes on, however, with unabated fervour, since over 3,000 more cases were examined at the clinics than in the previous year, while *x*-ray examinations have gone up 25%. New buildings are required—a large hospital near Swansea and up-to-date clinic premises elsewhere. The unification of the Welsh counties in this admirable tuberculosis scheme shows how the needs of a whole area can be planned without disproportionate regard for the natural but inconvenient loyalties of local areas. The Welsh Tuberculosis Scheme is indeed a model which should be studied widely by English counties and county boroughs. The directors of the scheme have naturally been concerned with organization in the future, but their pronouncements are guarded. Probably there will be less need for radical change in Wales than elsewhere, since the principle of unity has been accepted. One would think that this way of regarding the tuberculosis problem as a whole, with preventive and curative methods carried out by the same officers, was its own justification.

Over 60,000 persons have been covered by mass miniature radiography, with the usual 1% of persons with definite pulmonary tuberculosis, or some other chest condition requiring observation. The Welsh National Memorial Association congratulates itself with reason on the mobility of its *x*-ray apparatus, which can apparently examine patients on the side of a mountain with as much speed and convenience as in a mining village. The education of patients in sanatoria is a newly developed feature, and Prof. Davies has been appointed in an advisory capacity to superintend correspondence and study courses. Even in illness Welshmen do not give up their intellectual ambitions. Speaking of thoracic surgery, Dr. Tattersall emphasizes the need for a surgical team in constant practice, and shows that all forms of chest disease can and should be dealt with by the one unit. The scheme in Wales costs about half a million pounds a year, and a thoughtful reader of this report will feel that the public authorities and the community receive value. The presentation of the report itself is a model of the way in which medical schemes should be explained to the public, whose co-operation, both financial and moral, is so essential to their success.

THE NEW QUEEN CHARLOTTE'S

The Queen recently paid a visit to Queen Charlotte's Maternity Hospital, which, its old Marylebone Road days forgotten, is now housed in splendid buildings at Ravenscourt Park in the west of London. Her Majesty inspected in particular the new nurses' home, which anticipates, so far as building and institutional arrangements can do so, the Ministry of Health code on nursing conditions.[1] The Bernhard Baron memorial staff home, which is ultimately to house 135 Queen Charlotte's nurses, is the most modern expression of the endeavour to ensure the comfort and health of the hospital nurse. It includes sitting-rooms, lounges, and a library as yet unfurnished. One innovation is six private rooms for pupils studying for examination or for nurses wishing to write letters or receive visitors, who may be of either sex. The teaching school, with its roomy class-rooms and its wards with dummy patients, is in the same building.

Every nurse has a separate bedroom, attractively furnished, and every sister a bed-sitting room and small dressing-room. Many of the bedrooms have french windows leading out on to balconies or a terrace roof. There is one bathroom for every four nurses. A sunny sick-bay with five windows is provided. The cafetaria-restaurant for the medical and nursing staff is equal to the dining-room of a good-class hotel, and beyond it are ample kitchens for staff and patients; these kitchens are equipped with all kinds of labour-saving devices, and have a system of ventilation so perfect that no smell of cooking penetrates beyond. The patients' food is served from electrically heated chromium-plated trolleys wheeled from the kitchens. The six acres of ground in which the hospital stands grow fruit and vegetables for staff and patients, while 170 hens provide two eggs a week for everyone.

The modern Queen Charlotte's, in which there are between 2,000 and 3,000 confinements a year, has now 135 beds and 123 cots open, its full complement being 200 beds and 175 cots. Its nursing force averages five to every four patients. The main patients' block has an unusual number of delivery suites and large tiled sluice-rooms. No ward has more than six beds, each bed surrounded with cubicle curtains on noiseless rings, and there are many one-bed and two-bed wards. A department for *x*-ray pelvimetry is established. Antenatal, postnatal, and infant clinics are in a separate building, and the oldest parts of the Ravenscourt Park hospital estate are the isolation block and the Baron research laboratories, in which much of the early work on the sulphonamides was done. The hospital and nurses' home, representing an outlay of over half a million, is mainly a wartime construction as yet incomplete, but in scale and provision it bears few marks of wartime stringency.

[1] See *British Medical Journal*, Nov. 24, 1945, p. 733.

IMPRESSIONS OF SURGERY IN WEST AFRICA

BY

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It is common knowledge that the West Coast of Africa is no health resort, and on the journey to that land one wondered how these strange surroundings and the equatorial climate would affect the problems of surgery. In this article I have endeavoured to convey my general impressions of the work, and of its background. Siting a hospital in a jungle is no easy task at the best of times, and my efforts to describe as accurately as I can our situation and working conditions should not be interpreted as a veiled criticism of those who had to solve the insoluble.

The hospital to which I was posted was on the fringe of a very large native town just over 100 miles from the coast, in the heart of the thick coastal belt of tropical vegetation. In the early days the "bush" came close to the hospital buildings, and there were as yet extensive undrained swamps on three sides of us—swamps whose ramifications seemed endless and against which we waged ceaseless war. Both they and their air-borne progeny were more than equal to the struggle, and "though men might come and men might go," the mosquitoes went on for ever. Two years after the hospital had opened, a senior visiting medical officer remarked that he had never seen so many mosquitoes gathered together in one place as in the latrines in the officers' lines. These conditions combined to produce the high incidence rate of malaria among our personnel that one would expect.

The hospital was primarily, and at times exclusively, for European troops, so that the following account of the surgical work relates chiefly to Europeans.

During a period of 19 months the total number of cases passing through my hands was very small by comparison with that of surgeons in an active theatre of war, but covered a wide range of surgical problems in climatic conditions far different from those of Europe and North Africa. In my opinion the most important climatic difference was the hot, moist atmosphere which persisted for all but about six weeks in the year, and which favoured the growth of micro-organisms, and indeed of almost any form of life, vegetable or animal. While moulds invaded our books and white ants devoured the woodwork, the staphylococcus seemed to lose all sense of proportion and to spread with the invasiveness of its friend and ally, the haemolytic streptococcus.

There was one other general factor to which I would refer, and that was the ever-present subclinical malaria, which it is reasonable to suppose played some part in altering the normal course of other diseases, whether by flaring up into a full attack, by precipitating blackwater fever, or, in some more obscure way, by influencing the rate of recovery of general health. That this last point is not without scientific support is borne out by the observation that insomnia, general debility, and anaemia frequently remained intractable to any form of treatment other than antimalarial therapy. It was commonly accepted that there was a general falling off of health some time after the lapse of a year and that most Europeans were "run down" after eighteen months, that they became increasingly more susceptible to bacterial infections of all sorts, and that the morbidity rate in non-tropical as well as in tropical diseases was higher among the military personnel than among European civilians. My first feelings were that this was no place for major surgery if it could be avoided—an impression which received ample support from the local civilian European inhabitants, who, if they expressed a view, always seemed to bear this out.

I will now review under a few general headings my impressions of the cases which came under my care, with special emphasis on the differences rather than on the similarities of like problems in Europe. I would like again to emphasize that the patients were European British or Allied soldiers and some civilians, and that Africans are designated as such when mentioned, and to state that I have purposely avoided the mention of figures, which are too small to have any real statistical value.

Wounds

We soon discovered that the surgically inflicted wound, under aseptic conditions, could be expected to heal as cleanly as and even quicker than in a temperate climate. One's confidence mounted by stages, and as a result of increasing experience with relatively safe cases. I have no hesitation now in recommending an exploratory operation on the knee-joint in West Africa, provided full aseptic conditions are obtainable. None of the knee-joints that were operated on in the hospital to which I was posted showed any sign of post-operative infection thoughout my tour, and clean surgical operations such as for hernia ran a course exactly similar to cases at home. With regard to these latter, and to the abdominal cases, the only noteworthy difference was the absence of post-operative chest complications. This was especially noteworthy as it included some severe upper abdominal operations.

The general impression was that clean surgical wounds, such as I have described, did best if lightly dressed with gauze to allow the maximum evaporation of moisture from the skin surface, and it was our usual custom to fix the dressing at either end with strapping, and to avoid the use of wool and bandage or anything approaching an occlusive dressing.

We formed the impression that contaminated wounds could be expected to run a parallel course to those in Europe, but it should be emphasized that we had no penicillin and no sulphathiazole, and that, therefore, results could not be expected to compare with more recent ones. Heavily infected wounds, on the other hand, were a very different proposition indeed. Where it had been possible to treat a clean penetrating revolver bullet wound of the ankle-joint, with much shattering of bone, in a closed plaster cast with excellent results, we found all attempts to treat heavily infected wounds by occlusive methods a total failure. So far as my experience went Winnett Orr's or Trueta's methods were a total failure in the area of West Africa where I worked. Whether one used plaster-of-Paris, elastoplast, or any other improvised method, whether one changed the dressing frequently or at longer intervals, the result seemed to be always the same—the sepsis tended to be deeper, the pus more profuse, and the evidence of healing non-existent. This state of affairs set a nice problem in the treatment of septic compound fractures, which fortunately were few.

In the great majority of cases the predominant organism was the *Staphylococcus aureus*, which seemed, as I have already stated, to take on the invasive and septicaemic tendencies of the haemolytic streptococcus. A certain number of infected wounds and ulcers grew a mixture of organisms, but my impression was that in the great majority of cases the *Staphylococcus aureus* quickly overgrew the others.

In the absence of penicillin and sulphathiazole, we found the best local treatment of such wounds was immobilization, free drainage, and frequent hypertonic saline or eusol dressings. Most of these cases could be quickly brought under control by such methods, though I was completely defeated by a septic ulcer below the inner malleolus in an officer, which was still pouring pus after four months in spite of every resource at my disposal having been tried.

As the staphylococcus was the predominant organism we did not get, or expect to get, much success with oral sulphonamides or sulphapyridine, and we gave up using them in cases where the tendency for infection to spread had been arrested.

I did not see a case of gas gangrene or tetanus in either a European or an African.

Inflammatory Conditions

Mention has already been made of the tendency for staphylococcal infections of the skin to spread. The incidence of boils and carbuncles was high, especially in men towards the end of their tour, and the tendency for cellulitis to develop from what was originally a localized staphylococcal lesion was very marked. In my experience a streptococcus was rarely obtained by culture, though clinically one would have expected it frequently. The incidence of staphylococcal lesions in the deeper parts of the body seemed to me to be far greater than at home and on a par with those of the skin. Staphylococcal

septicaemia, empyema thoracis, frontal sinusitis, and urethritis were noteworthy among them.

The case of frontal sinusitis, which occurred in a young airman, took a sinister course, starting quietly and ending in three months in death.

Staphylococcal urethritis was frequent and extremely intractable, and staphylococcal infections of the external genitalia, on one occasion associated with superficial gangrene, were not uncommon. It seemed to me that there was an abnormally high incidence of perianal suppuration such as ischio-rectal abscess and fistula formation. I did not have a case of intramuscular abscess of unknown origin in a European, so often seen in the African. Infections of the hand were common, but I had a case in an African of tenosynovitis of the finger due to monilia in pure culture, which is described, but is, I believe, extremely rare. Chronic suppurative conditions did badly in West Africa, and in fact any chronic inflammatory lesion tended to get worse, and attempts to heal such cases there frequently failed.

Tropical ulcer without the characteristic spirochaete may not be the genuine article, but I can only say that a large ulcer, occurring almost always below knee level, and following slight trauma, occurred frequently among British troops, and never once did we find the characteristic organism described in textbooks. The ulcer formed rapidly, after the breakdown of a local patch of cellulitis with intense but localized engorgement of vessels, and took months to heal. The organism we found in almost every case was the *Staphylococcus aureus*. Had we at that time had penicillin powder available I think we could have cured the cases in a matter of days. We tried everything from closed plaster-of-Paris casts to fresh air in the air-conditioned room, to shorten the period in hospital. Some surgeons had successes in African cases by skin grafting, but I must admit that my skin grafts suffered the fate of all lesions under a thick dressing, for they were floated off in a sea of pus. It may well be that my technique was at fault, and that 48-hour dressings would have saved them. At all events, what had sufficed for success in Europe I found was a total failure in West Africa. Neither did I find insufflation with any sulphonamide preparation then available to be of the slightest use, as the powder formed a thick crust with the discharges, and suppuration went steadily ahead underneath. We found that the air-conditioned room, which was drier, cooler, and insect-proof, was probably the most efficacious treatment, and after that Capt. Henry Foster's method of directing a current of air at the lesion from an electric fan. Hypertonic saline dressings frequently applied came third, and at the bottom of the list a closed plaster cast or other form of occlusive dressing, than which nothing could have been worse.

Acute appendicitis occurred among Europeans in about the same proportion as in Europe, but I personally did not come across a genuine case in an African. Among my cases I noted two points: a relatively high proportion of gangrenous and perforated appendices, and a tendency for really acute appendicitis to be associated with diarrhoea. This latter symptom was not by any means invariably associated with pelvic peritonitis or pelvic abscess, and must either remain unexplained or be regarded as a freak observation. It is not unreasonable to suppose that, with the higher incidence rate of bacterial and parasitic diseases of the intestine in tropical countries, the appendix on becoming involved does not arrest the excessive peristalsis of the irritated large bowel.

Fractures

During my tour of service I was called upon to survey the case records of all our fractures, as it had been reported that there was a relatively high incidence of delayed union in certain hospitals on the Coast. Among the European patients I did not find any evidence of this, but it was noted that skiagrams of the bones of European British and Allied troops showed relatively denser calcification than was the case in Africans, and I think it is probable that hospitals treating African troops only might well have had a higher percentage of delayed union. On looking back, I think now that both British and African cases showed a smaller quantity of callus than one is accustomed to see some weeks after injury, which would suggest that there might have been some degree of vitamin C deficiency.

Closed fractures were treated in exactly the same way as in Europe—usually by immobilization in closed plaster-of-Paris after reduction, and with satisfactory results. In spite of the climate we treated three cases of fractured spine in complete hyperextension plasters, in which the occupants walked about freely and without showing signs of heat-stroke. We took the precaution of cutting a window over the abdomen with this in mind.

At this point it may well be asked why serious cases of all types, and those becoming chronic, were not sent back to England rather than retained in West Africa under adverse climatic conditions. The explanation is that the shipping situation was at that time so bad that it took weeks, and often months, before serious cases could be moved, as they had to travel in an escorted ship. The only policy that could be followed was to treat all cases on definitive lines, and to transfer to England the more urgent ones whenever possible.

Tropical Diseases

Among the Europeans I found surgical conditions due to tropical diseases extremely uncommon. I searched in vain for bilharzia of the bladder and for an amoebic abscess of the liver. Both these conditions were frequent enough in African troops, who also could often produce guinea-worms out of their legs, and occasionally loa-loa worms out of their conjunctivae, amidst great excitement and much hasty sterilization of ophthalmic instruments. Usually by the time we were ready the worm had passed on, and we had the forlorn pleasure of demonstrating to the excited onlookers where it had been five minutes before.

But about amoebic infections of the lower bowel I would emphasize, at the risk of being thought tedious, the following points: That we had numerous instances in which examination of the stools for *Entamoeba histolytica* had failed repeatedly and over a period of months, during which time the patient's health had steadily deteriorated, but that on passing a proctoscope typical amoebic ulceration was immediately seen, and a direct smear from an ulcer with a platinum loop revealed the organism in large numbers. In my experience of this disease, if ulceration does not come within the range of the proctoscope it is very unlikely to come within that of a sigmoidoscope, which probably means it is not there at all. Provided certain elementary rules are observed, the chances of an immediate and accurate diagnosis with this simple and safe instrument are extremely high. The rules are these:

(1) Don't give any form of treatment to the patient for 48 hours before examination, especially any rectal lavage.

(2) Don't use a proctoscope which has been dipped in any antiseptic, as the amoebae immediately "freeze up."

(3) Have the pathologist at your elbow when you take the specimen, so that it is immediately mounted in warm saline and examined without delay.

Rare Diseases

I saw three cases, all in Africans, which I think worthy of mention.

The first was a case I have already mentioned of a monilia infection of the tendon sheath of a finger in an African corporal. The history was of five days' pain, stiffness, and swelling in the finger, which had an old deformity due to a boxing injury five years before. Clinically the finger suggested a tendon-sheath infection, but of such mild degree that for 24 hours I was in some doubt as to the diagnosis. There was no sign of infection round the root of the nail or elsewhere on the hand, and no past history of infection. On incising the tendon sheath a pearly opalescent fluid came out, which was investigated bacteriologically and found to contain the fungus mentioned, in pure culture. Unlike bacterial sheath infections, there was a return to full function.

The second was in an African boy of 8 years, who had a massive osteoma growing from the horizontal and ascending ramus of his lower jaw, chiefly from the outer aspect. But it extended downwards into the neck and upwards inside the malar arch, displacing the latter outwards. There was a long history of gradually increasing deformity. Dr. Garrett, of the Colonial Medical Service, who was in charge of the case, asked me for my opinion as to treatment, and we decided that an attempt should be made to remove the bony mass after ligation of the external carotid artery. At operation I found I was unable to reach this vessel on account of the downward extension of the tumour, and was obliged to ligate the common carotid instead. The bony mass was then chiselled

away piecemeal from the outer aspect of the mandible in a relatively bloodless field. There was no resultant hemiplegia following the ligature of the vessel, but the cosmetic result was to some extent spoilt by the distortion of the malar arch. The bony mass arose from practically the whole of the outer aspect of one side of the mandible and was a mixture of cancellous and ivory bone. There was no evidence of malignant change.

The third was that of a female child of 3 years, with a circumscribed mass in the abdomen about the size of a large grapefruit, which was shown to me by Dr. Northrop, of the American Baptist Mission Hospital at Ogbomosho. There was no clinical indication as to what this might be, and we decided to do a laparotomy. We found a circumscribed tumour of the size of a grapefruit in the substance of the liver, which appeared to have no metastases nor to be attached to any other structure, and which shelled out surprisingly easily. The child unfortunately died on the tenth day after operation. The tumour, which I reported on in more detail in the *Journal of the R.A.M.C.* of July, 1944, has been the subject of much discussion, but no definite opinion has been given as to its nature, though Major Janet Niven, R.A.M.C., expressed the view that it was probably a case of congenital cystic disease arising from bile-duct epithelium.

Some General Observations

Along the coastal belt of parts of West Africa there is stated to be a layer of vapour approximately 10,000 feet in depth, which to a large extent filters off the ultra-violet rays before they can reach the surface of the earth. Whatever the precise physical phenomena may be, it is certainly true that the skin tans unwillingly, and that many people who lead a comparatively open-air life look pale and washed out. I do not know to what extent this may affect the general health of Europeans, but assiduous sun-bathing does eventually produce tanning of the skin, and it seemed to me that latterly, when a greater proportion of men were sun-bathing fairly regularly, there was a rise in the general standard of health. But, as I have already said, other factors were also at work. It seems hardly possible in a land of green vegetation and many varieties of fruit that there could be serious vitamin A or C deficiencies, but the filtration of the sun's rays by vapour may have had some effect on man and vegetation alike. On this subject I feel I am on dangerous ground, but at all events the possibility of vitamin deficiency in tropical ulcer, gingivitis, prolonged sepsis, and broken-down wounds was not forgotten, and extra vitamins in big doses were given in many cases; but I confess that I never felt that this line of therapy appeared to affect the progress of the cases materially.

In regard to haemorrhage during operations, I think that there was rather more at times than one would expect in most cases in Europe, but I was never faced with uncontrollable bleeding in the course of any operation I performed.

Papillomata of the skin anywhere, but especially of the genitals, seemed to thrive in West Africa, and to seed themselves with alarming rapidity. I never saw one on the penis of a circumcised patient, and soon learned that circumcision was the only treatment holding out any prospect of cure.

Owing to the kindness of medical friends who were in charge of the civil population, I had opportunities of seeing many curious conditions in Africans and of operating on a number of them. I formed the opinion that the average African was less susceptible to surgical shock than a European, and that the degree of haemorrhage during an operation was comparable with that of a European in Europe.

Conclusion

I have written these impressions of surgery in West Africa from the point of view of a surgeon whose whole training and past experience have been in Europe, in the hope that they may have some general interest. My experience of the African is much more limited than that of many of my contemporaries on the Coast, but I had opportunities of treating a larger proportion of European British and Allied patients there than most surgeons, and on these I have largely based this article. As a result of ceaseless effort in many directions the unsatisfactory conditions in which we worked in the early days were, by the time I left, largely remedied, and the general health of our personnel had greatly improved.

I am deeply grateful to all my colleagues in the Army, in the Colonial Medical Service, and elsewhere for their friendship, their collaboration, and their generous hospitality.

MEDICAL SCIENCE IN RUSSIA

The following account of the work of the recent session of the Academy of Medical Sciences, U.S.S.R., has been sent to us from Moscow by Academician V. Parin, the general secretary.

Connecting Theory and Practice

The second session of the Academy of Medical Sciences, held in Moscow between Oct. 28 and Nov. 2, summed up results of the organizational period of the Academy and its institutes. The session outlined the tasks confronting the Academy in connexion with the new five-year plan that is now being drawn up: that in the field of public health services calls for complete restoration of all medical institutions wrecked in Nazi-ravaged districts and for further improvement of medical assistance in the service of the population of the U.S.S.R.

A characteristic feature of this session was the desire shown by all its participants to connect theory still more closely with practice. During the war medical men of the Soviet Union achieved outstanding successes in treatment of the wounded and in protecting the health of the population. These attainments were a result of the selfless work of medical personnel and of the introduction into practice of new or perfected medical preparations and methods of treatment.

Academician A. Bogomolotes and others who took part in the discussions spoke of the necessity for including certain long-term research problems in plans for research institutes which may serve as a base for important future medical discoveries. All the speakers mentioned the achievements of medical science in Europe and in the U.S.A., particularly the study of nutrition and dietetics in the latter country, and expressed great interest in foreign equipment and in the foreign scientific press. It was noted that institutes associated with the Academy had in the course of ten months carried out comprehensive research work giving highly satisfactory results. Methods for improving the efficacy of penicillin had been worked out in the Institute of Neurosurgery, under the direction of Academician N. Burdenko. An expedition from the Institute of Neurology, headed by Prof. Chumakov, had studied a hitherto unknown virus disease—Crimean haemorrhagic fever—and discovered methods for combating it. Interesting experiments had been made in the Institute of Haematology and Blood Transfusion. The importance was stressed of collaboration between representatives of various departments and institutes of the Academy.

A Five-year Plan for Research

Prospects for the development of the Academy of Medical Sciences during the five-year period 1946–50 were discussed in detail. The following are the chief scientific problems around which the work of research institutes and departments of the Academy is to centre in the immediate future: more efficient methods for combating infectious and parasite-borne diseases, cancer, and tuberculosis; study and elimination of traces left by the war on public and individual health; further improvement in maternity and child welfare measures; study of nutrition and dietetics and the reactivity of the human organism.

The session elected an additional number of new members and corresponding members of the Academy. Medical organizations of the country had nominated 65 candidates, whose scientific activities were thoroughly considered by special commissions formed in the departments of the Academy; 39 new members were elected into the Academy by secret ballot.

BRISTOL HOSPITALS PROVIDENT FUND

The Bristol Hospitals Provident Fund, through which persons of moderate means may obtain grants towards the cost of specialists' fees, surgical operations, and hospital and nursing-home treatment, has now a total membership exceeding 58,000. It was recently decided, having regard to the increase in cost of hospital maintenance, that the rate of contribution to the fund should be raised from 3d. to 4d. a week. In 1944 over £25,000, or 40% of the fund's total distribution, was paid towards the cost of services rendered by the hospitals to the contributors and their dependants. Of the remainder, 29% was on account of services to members of other contributory funds with which there are reciprocal agreements, and 31% was distributed in the form of grants for specified and unspecified purposes. The fund has made a number of agreements with municipal and county authorities under which contributors are exempt from inquiry into their means and payments are accepted by the authorities from the fund in full settlement. In 1944 it was agreed to abolish the income limits of £4, £5, and £6 a week according to family responsibilities in favour of the new National Health Insurance limit of £420 a year irrespective of number of dependants on condition that the medical staffs of hospitals receive a percentage of contributory scheme grants for services rendered.

Reports of Societies

PROTEIN METABOLISM

A meeting of the Scottish Group of the Nutrition Society was held in the Rowett Institute, Aberdeen, on Oct. 20, under the chairmanship of Dr. D. P. CUTHBERTSON.

In opening the meeting Dr. Cuthbertson gave a historical survey of protein metabolism and emphasized certain points. He recalled that when animal proteins were short the dietary proteins might economically be supplemented by soya bean and similar foods. That being so, the old terms first- and second-class protein as applied to mixtures of food proteins became meaningless and should be discarded. The protein intake had been shown to be important in relation to resistance to disease. Protein depletion decreased the capacity to form antibodies, and this rapidly improved when high-quality protein was available. Physical trauma appeared to induce a phase of vigorous protein katabolism, which might be largely controlled by the addition of methionine to the diet.

Essential Amino-acids

Dr. C. P. STEWART (Edinburgh) said that by common consent the term "essential amino-acid" was restricted to those which an animal could not synthesize from ammonia or non-nitrogenous substances, though some restricted the term still further to those which the animal could not synthesize in sufficient quantity to promote normal growth. For the growing rat the ten essentials were threonine, valine, isoleucine, leucine, methionine, lysine, phenylalanine, arginine, histidine, and tryptophan. Requirements for maintenance of the adult animal might be different. In the case of adult rodents arginine could be dispensed with. In man certain experiments had thrown some doubt on the necessity for histidine. Under normal conditions there was some evidence that amino-acids not ordinarily needed in the diet, like cystine, might become indispensable. In certain cases, apparently, the natural amino-acid might be replaced by the corresponding keto- or hydroxy-acid, the N-acetyl or the N-formyl derivative.

Amino-acids were undoubtedly used for other purposes than the manufacture of proteins. Histidine would seem to be utilized as a precursor of purines and for the formation of histamine. Phenylalanine could give rise to adrenaline, thyroxine, and tyrosine, and possibly melanin. Methionine was concerned with the formation of creatine and of cysteine. Special functions had not yet been discovered for certain amino-acids. In general, lack of an essential amino-acid produced no definite specific symptoms such as were associated with the vitamin deficiencies.

Mr. H. D. GRIFFITH (Aberdeen) described the use of isotope tracers in the study of protein metabolism. Stable isotopes of hydrogen, carbon, nitrogen, and sulphur and radio-active forms of carbon, sulphur, and phosphorus were available. Radio-active isotopes could be followed in metabolic processes much more readily than stable isotopes. Nitrogen and carbon were particularly valuable in tracer research.

Modern Methods

Dr. J. N. DAVIDSON (Hampstead) discussed modern methods of studying protein metabolism. He pointed out that the most important advance of recent years had been the use of isotopes for following metabolic pathways. Nitrogen N^{15}, Sulphur^{34}, and Deuterium C^{13} had been used in this way. Heavy nitrogen, for example, could be introduced in the synthesis of amino-acids, and these labelled amino-acids could be traced in the tissues and in the excreta. Curiously enough only a fraction of the special nitrogen appeared in the urine as labelled urea, the rest being distributed throughout the body, even in such inert tissues as skin and tendon; and in the body the labelled nitrogen was found not only in the amino-acid fed to the animal but also in other amino-acids. From this it was inferred that the nitrogen of any amino-acid could be rapidly and easily transferred to others and that the tissue proteins were in a constant state of flux, forming a sort of general metabolic pool. If this was so, then the terms "exogenous" and "endogenous" metabolism ceased to have any precise meaning. By introducing both labelled nitrogen and carbon into an amino-acid more details could be obtained. Certain amino-acids could readily change the amino group, but their carbon chain was indispensable and could not be built up by the body. The behaviour of lysine was rather different, for both carbon chain and amino group were indispensable as a single unit. Since lysine did not take up nitrogen from other amino-acids it could be used as a means of labelling proteins, and this had been employed in the study of shock. By such methods useful information could also be obtained about the metabolism of methionine and nucleoproteins.

Dr. A. B. ANDERSON (Glasgow) discussed the therapeutic use of protein hydrolysates, and gave an account of his experience of their administration. He concluded that intravenous alimentation appeared to be of most value in cases of burns and in patients before and after operation. Hydrolysate therapy had no special advantage in starvation and in the gastro-enteritis of infants. Casein digests by mouth had the disadvantage of unpalatability, and for oral administration meat digests were preferable.

Medico-Legal

INSULIN AND THE MOTORIST

In an attempt to deal with the problem of the drunken and drug-addicted motorist, Parliament enacted in the Road Traffic Act, 1930, that it should be an offence for anyone to drive a car while under the influence of drink or drugs to such an extent as to be incapable of having proper control of the vehicle. The drugs in the contemplation of Parliament were obviously more or less identical with those controlled by the Dangerous Drugs Acts—chiefly morphine and cocaine—and it is highly doubtful whether any legislator who approved the passage of the Bill foresaw that one day a diabetic motorist would be charged with driving under the influence of insulin. This, however, happened earlier in the year at Bournemouth,* where the magistrates convicted a driver, fined him £2 and costs, and suspended his licence for a year. He had collided with a van and been found partially helpless and incoherent. There was no dispute that he was a diabetic and had had too much insulin and insufficient carbohydrate with his midday meal. His own story was that he depended on his car to carry out his duties; on the day of the accident he did not have his normal midday diet; during the afternoon he felt a tingling in his fingers and took a lump of sugar, and later he felt tired and decided to drive home; he thought he drove perfectly normally, but could not remember the accident. On his appeal to Quarter Sessions, his counsel advanced the ingenious argument that there was no proof of the unlawful influence of a drug. The motorist, he said, was right to take insulin to restore himself to normal health on medical advice, and he was under the influence, not of the drug, but of too little food. Medical men, however, gave evidence that insulin is a drug in the medical sense of the word, and the Recorder, Mr. H. D. Samuels, held that it was a drug within the meaning of the Act and that the motorist had been rightly convicted. On the other hand, as the appellant was entirely blameless in the matter and did not deserve to be punished, he dismissed the case under the Probation of Offenders Act and restored the licence, but left each side to pay its own costs. The decision is not binding on another court, and any bench of magistrates may still hold that insulin is not a drug for this purpose; but it is rather difficult to avoid the conclusion to which the Recorder of Bournemouth came.

* *Bournemouth Daily Echo*, June 26.

Dr. W. Essex Wynter, consulting physician to Middlesex Hospital, who died on Jan. 4, bequeathed all his real estate at Newbury to Middlesex Hospital for use as a home for retired and pensioned sisters and nurses or convalescent sisters and nurses, and his household effects, etc., and also £7,500 upon trust for the upkeep thereof. A full account of the very ancient building within the curtilage of Bartholomew Manor which Dr. Wynter bought and restored was given in the *Journal* of Feb. 19, 1938.

Correspondence

The Operation for Varicose Veins

SIR,—I have read Mr. Harold Dodd's letter on the operation for varicose veins (Oct. 13, p. 510). May I be permitted to record a few of my own observations in regard to the treatment and operative procedure for varicose veins.

1. It is my opinion that in all cases where the valves of saphenous veins are proven to be incompetent and accompanied by multiple varicosities of the leg, ligation and excision is the operation of choice.

2. Inasmuch as the anatomy of the venous system is variable a thorough search should be made in the groin incision in order to ligate tributaries—e.g., superficial external pudendal, superficial epigastric, superficial circumflex iliac, and other nameless tributaries which may or may not be present. Two or three inches below the fossa ovalis the saphenous vein will often be seen to be joined by two or three large venous branches—e.g., the external femoral, middle and internal femoral tributaries of the great saphenous. At operations for recurrence of varicosities I have noted that these veins appear to be markedly dilated, due to the fact that they were not ligated and sectioned at the time of the original operation.

3. Prior to operation a series of tourniquets from the thigh to lower leg should be applied while the patient is lying down and his leg elevated in order to empty the venous system. The patient is then allowed to stand and walk and the tourniquets are removed starting from below upwards. Areas of incompetence due to the communication tributaries from the deep to the superficial system are discovered. These areas are then marked out with indian ink in order to facilitate the operative procedure.

4. Certainly the saphenous vein should always be ligated in the groin, but it is my opinion that many unsightly ankle scars can be avoided if ankle ligations are reserved for the very infrequent cases which would require this procedure. The secondary sites of ligature depend on the site of gross venous incompetence, as shown by the tourniquet test. There are several cases which require only a high saphenous ligation, but where there are "blow-outs," sites of gross incompetence, these must also be ligated and sectioned to obtain good results. De Takats (1933) claims that high saphenous ligation alone will result in a direct cure in 20% of the cases. High ligation followed by injection produces excellent results and diminishes the incidence of pulmonary emboli.

I have found that injection at the time of operation lengthens convalescence because of delayed healing at the operative site and pain in the extremity involved. I prefer to do a high saphenous ligation alone, or combined with multiple ligations depending on the individual case. Both ends of the saphenous should be doubly ligated and transfixed. The patient is allowed to go home on the day following operation. Six days later the sutures are removed and, if necessary, injections are started. For injection therapy it has been my practice to use 5% sodium morrhuate solution or a product called "sylnasol"—sodium psylliate in 2% benzyl alcohol. It has been our experience that patients treated by these methods have been able to return to work with a minimum loss of time and wages, with obvious advantages to themselves and their families.—I am, etc.,

New York. LÉON F. MULDAVIN.

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Treatment of Varicose Ulcers

SIR,—I had not been long in general practice before I realized how tedious it was to get chronic varicose ulcers to heal. It is interesting to review the various methods one has used in the past. My earliest recollections are those of seeing "elastoplast" used for varying lengths of time. The bandage was removed after, say, a week or ten days, sometimes perforce earlier, because of its sodden and always offensive condition, only to be replaced with a fresh bandage; and this went on for weeks on end. Healing took months. The next trial was that of "viscopaste" bandage and similar absorbent preparations, the idea being for the bandage material to absorb any discharge or eczematous matter. I found this type of bandage little or no advance on the last. Incidentally I well remember a case where I incorporated an ulcer in a plaster-of-Paris bandage (taking a tremendous risk) when treating a fracture, with perfect results on removal of the plaster.

My next efforts consisted in making an ointment of zinc oxide and white vaseline and covering the ulcer with strips of lint paste. I found that whereas this was soothing it did not promote healing or absorb the eczematous fluid, nor did the wound remain sweet. This led me to try another modification of zinc oxide with olive oil, with a touch of scarlet-red ointment. This gave better results for a few cases.

In an endeavour to improve on this preparation—for some skins were sensitive to scarlet red—I used cod-liver oil and sulphanilamide powder, occasionally (usually after trial) in combination with a little scarlet red. Healing with this preparation was quicker; the wound was clean; but I failed to dispose of or absorb the eczematous fluids. Repair still took weeks. This, then, led me to discard oily preparations, and for the past eighteen months I have been using pulv. lapis calamin. with gentian-violet powder and solution made into a mauve paste of the consistency of putty. This paste was spread on the ulcer with a knife in an endeavour literally to fill it and to level off at the edges. In a couple of hours this would dry and possibly crack in a few places. A simple dry dressing would be put over the paste to keep it in position. Patients were taught and instructed that when cracks appeared or where there was an oozing of sero-sanguineous fluid they were to apply a fresh layer of paste, allow to dry, and cover. This process of applying a fresh layer was repeated by the patient as often as cracks developed or matter oozed from the edges or little pieces of paste fell out.

In two or three weeks' time a hard, dry, mauve, wart-like crustation would form over the ulcer; and this was not removed. It would fall off in due course, leaving a healed smooth shining surface level with the rest of the skin. Occasionally curiosity on the part of patient and attendant would lead to removal of this mass to see what was happening underneath. This naturally prolonged the time of healing; and, of course, the ulcer had to receive fresh applications of the paste till the dry stage was reached. To this paste I have at times added sulphanilamide powder, especially for dirty ulcers, but sulphanilamide should *never* be applied to a deep ulcer, as it only increases the flow of sero-sanguineous offensive exudate. This last method has rarely failed to effect a healing, even though slow and drawn out a bit. But its main advantage was that the patient could carry out the necessary instructions after a couple of simple demonstrations. There have been occasions where the skin for several inches surrounding the ulcers was red, with a dry scaly eczema. Using the gentian paste for the ulcer *alone*, I have applied another preparation of castor oil, pulv. lapis calamin., a trace of tar, and salicylic acid, to the dry eczema, with gratifying results. Care, however, must be taken to see that the oily tar paste does not merge into the ulcer, for it will not mix with the gentian paste and healing will be retarded.

I have no figures and no lengthy detailed notes of individual cases, and I think they would serve no purpose. In a small practice with a limited number of cases such things as controls and day-to-day notes are not possible, but the above methods have been tried out, each in turn, for a fair number of cases over a period of thirteen years.

I next come to my latest venture—namely, the use of penicillin cream. Through the courtesy of the Department of Preventive Medicine, Bristol University, I have been given a small quantity (strength 400 Oxford units per g.). I have had four cases (one a woman whose ulcers have been in existence for twenty years) of varying degrees of ulceration. My results so far have been most encouraging. Two cases have completely healed. Two will require at the most two further applications when the ulcers should have filled in with granulation tissue and levelled off with the skin. In all four cases healing has been very rapid as compared with earlier methods: where formerly it was months, now it is weeks.

May I advise any who may be interested to try this latest method that the cream should be applied thinly over the raw surface of the ulcer, paying particular attention to the edges. Thick applications of cream are a waste of so precious a commodity. Furthermore, too frequent changes of dressings are, in my opinion, harmful and wasteful. On an average a fresh dressing with fresh application of cream should not be oftener than once a week.

In conclusion, with all methods (including the use of penicillin) repeated elevation of the limbs every day for a couple of hours at a time is necessary.—I am, etc.,

Chipping Sodbury, Glos. ROSS. K. BROOKS.

Morphine as a Prophylactic for Ileus

SIR,—In reply to Mr. Judson Chesterman's letter (Nov. 24, p. 740), is it not unnecessary to look at recent work to discover what is the effect of morphine on the movement of the intestinal contents? We all know that pil. plumb. c̄ opio *B.P.C.*, pulv. cret. aromat. c̄ opio *B.P.*, pulv. kino. co. *B.P.C.*, etc., are preparations in which opium is used to check diarrhoea.

The precise effect of morphine on the intestine has been studied by many workers, including those mentioned by Mr. Chesterman. A detailed account of all this work, including a critical summary, is given in Supplement No. 165 to the *Public Health Reports* of the United States Public Health Service. This most valuable publication on the *Pharmacology of the Alkaloids* is written by Krueger, Eddy, and Sumwalt, who have themselves studied the action of morphine on the intestine. They discuss the different methods which have been used to examine the action of morphine on the intestine and emphasize what has been pointed out by earlier workers, that these methods often make it impossible to draw conclusions about the joint effect of increased tone, increased segmentation movements, and changes in peristalsis on the propulsion of intestinal contents. They say:

"The most satisfactory contribution to the subject of the effect of morphine on the peristalsis of the small intestine has been made by Quigley, Highstone, and Ivy (*J. Pharmacol.*, 1934, **51**, 308). They made determinations of the interval required for the passage of a bolus through a Thiry-Vella loop, the bolus being immediately reinserted and its propulsive rate redetermined. Following 0.5 mg. of morphine per kg., intestinal propulsive activity of the ileum was increased 30 or 40% for about 30 minutes and was followed by a secondary rapidly developing decrease in propulsive activity. . . .

"The bolus method showed an abrupt and pronounced decrease in propulsive activity beginning 30 minutes after the injection, at a time when balloon records indicated augmented peristaltic activity. Thus it was evident that the tracings obtained by the balloon method cannot be directly translated into terms of propulsive efficiency. The period of reduced propulsive activity, which is really the outstanding effect of morphine, must play an important role in the well-known constipating action of this drug."

Krueger, Eddy, and Sumwalt have calculated the reduction in propulsive activity from the data of Quigley, Highstone, and Ivy. They find that after 0.5 mg. morphine per kg. (which is equivalent to 0.5 grain for a man of 60 kg.) a bolus moves in 4 hours about 80 cm., whereas before this dose of morphine it moved 300 cm. Thus, although there is an initial quickening of propulsion, the main effect of morphine is to produce four-fold delay.

Mr. Chesterman says that "morphine produces a long-lasting increase of intestinal tone unassociated with spasm in both the small and the large intestine." Both Thomas (*Proc. Soc. exp. Biol.*, N.Y., 1926, **23**, 748) and Schroeder (*Arch. exp. Path. Pharmakol.*, 1933, **170**, 359) are definite that morphine causes spasm of the pylorus. Spasm of the lower part of the bile duct has been shown to follow the injection of morphine and to cause a rise in intrabiliary pressure in man from below 20 mm. water to above 200 mm. (Butsch, McGowan, and Walters, *Surg. Gynec. Obstet.*, 1936, **63**, 451). Observations that morphine causes increased tone and spasm of the sphincter of the bladder date back to 1828, when it was first described by Bally. It would be surprising, in view of this widespread spasm-producing action, if the small and the large intestine were exempt, and Schroeder (loc. cit.) observed that morphine produced a contraction of the ileo-colic sphincter.

In view of these considerations, surely there is no justification for the use of morphine as a prophylactic against ileus! No evidence in which control observations were made during an earlier period can modify this conclusion. It is surely impossible to say afterwards that there has been no change in the readiness with which the operation of Caesarean section has been undertaken. If in the earlier period the operation was more often undertaken late in labour, when the patient was suffering from some exhaustion, the results observed would be explained.

With regard to the parasympathomimetic drug physostigmine, which, by preserving the acetylcholine formed in the gut wall, increases intestinal movements through the natural mechanism, it is important to remember the great variation which exists in individuals towards any drug. It is necessary to find the right dose, and, if nausea and colic occur, too large a dose has been given. Repeated small doses should be used of a freshly prepared solution. The *B.P.* dose is 1/100 to 1/50 grain, and it is probably wise to begin with 1/200 grain; a second dose can then be given after 30 minutes.—I am, etc.,

Department of Pharmacology, Oxford. J. H. BURN.

Sequelae of Emphysematous Lung

SIR,—Dr. Ronald Jones has described in the *Journal* (Oct. 20, p. 530) two cases of massive surgical emphysema, pneumothorax, and pneumomediastinum associated with bronchoscopy, and these were discussed in an interesting letter by Dr. J. E. Bannen (Nov. 10, p. 665).

Cases of pneumomediastinum followed by interstitial emphysema of the tissues of the face, neck, and trunk have been described occurring spontaneously in association with a variety of conditions—e.g., the exertions of labour (Nussbaum was able to add twelve cases to the 130 Gordan collected, while Phillips had a remarkable series of five personal cases in four years); phthisical haemoptysis (Bryan); asthma (L. and J. Rosenberg reviewed eighteen cases in 1938 and I have had one personal case not yet described); whooping-cough (Beaumont); exposure to depth charges (Cameron, Short, and Wakeley), etc., as well as being produced traumatically in association with such operative procedures as tracheotomy, lobectomy, and bronchoscopy.

Although, as Bannen suggests, vesicular emphysema is usually present when this condition arises, yet it is not invariably so, as *x*-ray examination of the chest in Phillips's five cases failed to demonstrate its presence. In fact, if vesicular emphysema were a necessary precursor, one would expect to find, in view of the number of cases of pneumomediastinum occurring during labour, puerperal emphysema, a condition not so far described, of common occurrence. C. C. Macklin, however, showed experimentally that vesicular emphysema was not essential before pneumomediastinum could be produced. He produced it by over-infiltrating part of a normal healthy lung of an anaesthetized cat. He showed that it was due to a break through the alveolar base into the perivascular sheath, along which the air passed to the mediastinal wall, and, when pressure was sufficient, this wall ruptured to give pneumomediastinum.

With regard to treatment, it is well to remember that this alarming-looking condition of marked subcutaneous interstitial emphysema usually calls for no treatment *per se*, and that it will entirely disappear in the course of a few days. Heroic incisions are not necessary. The exception is the very rare condition of "pressure pneumomediastinum," shown by marked dilatation of the veins of the neck, in which case all that is required, as M. T. Macklin pointed out, is the insertion of a hollow needle into the mediastinum at the side of the sternum, or the insertion of a catheter into the base of the neck and pushing it down to the site of the encapsulated air. Hamilton Bailey suggests that it may be necessary to incise in the neck down to the trachea and provide some sort of suction apparatus, quoting Tiegel's case. However, it is difficult to know why it should be necessary to "suck" out air that is under pressure. Thus in Jones's two cases air failed to escape although needles were inserted into the mediastinum, and although in one case suction was applied. This would seem to bear out the contention that in the majority of cases this treatment is unnecessary. The cyanosis must have been due to the blockage of the respiratory tracts by the swollen mucosa he describes, and not due to "pressure pneumomediastinum," and the rapid reintroduction of the bronchoscope and other measures of resuscitation undertaken undoubtedly saved the patient's life.

Bannen's sign for the diagnosis of pneumoperitoneum is surprising and the reverse of what one would have imagined—i.e., one would have thought that the intraperitoneal gas would have risen and not sunk to the most dependent part.—I am, etc.,

Parkstone. T. B. L. BRYAN.

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Non-specific Mesenteric Lymphadenitis

SIR,—I cannot help writing to congratulate Mr. Ian Aird on his excellent and timely article on acute non-specific mesenteric lymphadenitis (Nov. 17, p. 680). During the last few years I have come across two definite cases of this condition, and, feeling that I should like to know more of the pathology, etc., I have been disappointed to find how little is mentioned of acute abdominal lymphadenitis in the textbooks. For this reason I think we owe a debt of gratitude to Mr. Aird.

The first case which I saw and was able to label a non-specific lymphadenitis occurred when I was called to a fever hospital to operate on a child with scarlet fever, and diagnosed as suffering from an acute appendicitis. On performing a laparotomy the appendix was found to be normal, but the mesentery of the bowel contained masses of enlarged lymphatic glands. These were round and elastic in consistency, as described by Mr. Aird.

The second case, which was more recent, was in a lady medical officer in the R.A.M.C., whom I was asked to see because of severe abdominal pain. The history was that a week previously she had developed a sore throat. After this she began to complain of abdominal pain which was colicky in nature. In addition there was some backache. Between the attacks there was entire freedom from pain. As there was an appendicectomy scar the possibility of appendicitis was ruled out. All other investigations proved negative. The only conclusion I could arrive at was that this was a case of acute mesenteric adenitis. It is interesting to note that in this case the patient later developed acute rheumatic fever, which excluded her from being sent abroad.

These two cases, the one occurring in the course of scarlet fever and the other preceded by a sore throat and subsequently developing rheumatic fever, lend support to the theory suggested by Mr. Aird and others that acute mesenteric adenitis is due to a virus infection. In conclusion I should like to state that, although Mr. Aird has given us a complete description of this clinical entity, acute non-specific mesenteric lymphadenitis is a very dangerous diagnosis to make when confronted with an acute abdomen, especially in a child. One realizes how very variable the symptomatology of acute appendicitis is in children, and to withhold operation because of a diagnosis of acute mesenteric adenitis will, I feel sure, court disaster in many cases. For this reason I feel it is safer to look and see, rather than to be sorry afterwards.—I am, etc.,

London, W.1. MAURICE LEE.

SIR,—The world of surgery should be indebted to Mr. Ian Aird for his very illuminating paper on non-specific mesenteric adenitis, for it is a condition that requires to be very much more widely known than it is at present.

I first became familiar with the condition about 18 years ago when acting as a full-time municipal surgeon. Children were frequently sent to me by local practitioners with a provisional diagnosis of appendicitis, in whom there was a history of *previous* attacks of abdominal pain, in many instances extending over a period of months or even years. I held the view, and I hold it now, that appendicitis in children is generally an acute fulminating disease leading on to rapid perforation and peritonitis; so much so that operation must be done forthwith. These cases with histories of previous attacks of abdominal pain, which rapidly resolved, leaving the child fit to return to school, did not fit in at all with my conception of appendicitis in children. The ones I operated on—and there were a fair number in those early days—almost invariably showed the distribution of swollen discrete mesenteric glands so clearly described by Mr. Aird, and like him I arrived at the conclusion that there was a definite syndrome in children, which I labelled loosely "mesenteric adenitis." I learned in time to differentiate those cases clinically and confidently abstained from operating.

I formed the opinion—perhaps without sufficient clinical proof—that the condition was largely due to the ingestion of unboiled milk, not so much the bovine bacilli as the numerous pathogenic organisms that result from the gross contamination of milk so prevalent in this country. When my own daughter, aged 6 years, who had never had one drop of unboiled milk up to that time, was operated upon for appendicitis I was impressed to learn from the operating surgeon that not one gland was pathologically enlarged. This finding naturally strengthened me in my belief. As regards accompanying factors I must admit that I found no constant association with upper respiratory infections, although I regarded this association as important in appendicitis, especially after learning that, in a girls' school, of 100 pupils with tonsillitis 25 required operation for appendicitis, and that in each case the same organism was found in the tonsils, the stools, and the appendix. Neither did I find an increase of cases at those times when upper respiratory infections were most prevalent.

However, the main point I wish to stress is the agreement with Mr. Aird that acute non-specific mesenteric adenitis is a definite clinical entity and, in spite of some obscurity about its cause, merits widespread recognition as an important disease, especially in children.—I am, etc.,

Wimbledon. N. L. MAXWELL READER.

Penicillin Pastilles

SIR,—Now that penicillin pastilles are coming into use, it is perhaps worth pointing out that if gelatin lozenges containing penicillin are allowed to dissolve *under* the tongue, in some people at least there appear demonstrable amounts of penicillin in the urine. These amounts are small in relation to the contents of the lozenges, and we presume that the blood level obtained by this method of administration is low. It would seem important, therefore, to remember that in the presence of an infection one may by this method contravene the generally accepted rule of chemotherapy that suboptimal dosage carries certain dangers.—We are, etc.,

A. C. LENDRUM.
I. LOMINSKI.

University of Glasgow.

Spinal Analgesia in Operative Obstetrics

SIR,—Despite Dr. Louis Resnick's article (Nov. 24, p. 722), there are, I feel, a variety of objections to spinal analgesia in operative obstetrics.

First, there is a quite definite risk. Dr. Resnick presents a series of 393 apparently successful cases; but that does not eliminate the possibility—it is really a probability—of a fatality sooner or later from an "alarming drop in blood pressure." This drop is often met where spinal analgesia is employed in cases of abdominal distension, and is caused by the slow adjustment of vasomotor control after the removal of pressure. Whatever Dr. Resnick may say, the "risk" cannot be eliminated in obstetric cases, and spinal analgesia in such cases is, therefore, wholly unjustifiable.

The second objection concerns the suitability of the method. The majority of patients prefer to be asleep during operation. This seems especially desirable during manœuvres where a certain amount of force may be necessary, as in difficult forceps extractions. Accordingly, from the point of view of the patient's comfort general anaesthesia is the better choice, particularly as no obstetrician in my experience would agree to premedication with "omnopon 1/3 gr. and scopolamine 1/300 gr. . . . about 45 minutes before operation," as Dr. Resnick advises. At worst this may so depress the baby's respiratory centre as to result in stillbirth; at best there are anxious moments before the baby "gets going." In those cases for Caesarean section where a general anaesthetic is contraindicated, regional field block is a satisfactory and safe substitute, and, though admittedly the multiple injections are more unpleasant than the single one, the extra degree of safety obtained is the factor of paramount importance.

With regard to vaginal delivery, there is a very true dictum to the effect that if a patient is fit to undergo labour she is fit to have a general anaesthetic. Such anaesthesias are usually

short, and the necessary manœuvres can be accomplished under gas and oxygen with minimal ether or trilene, or under cyclopropane O_2, according to indications.

Finally, apart from the question of fatalities under spinal analgesia, there are a number of possible unpleasant sequelae inherent in the method. The commonest, but by no means the most dangerous, of these is headache. Dr. Resnick admits its high incidence in his cases. It may be extremely intractable and is, of course, always annoying to the patient even if slight.

My own view is that in operative obstetrics spinal analgesia should be abandoned in favour of methods less fraught with potential danger and more suited to the conditions.—I am, etc.,

London, N.W.3. HELEN BOWER ALCOCK.

SIR,—It was interesting to read the recent article on spinal analgesia in operative obstetrics by Dr. Louis Resnick. While believing that the ordinary methods of inhalation and intravenous anaesthesia are indicated in routine work in operative obstetrics, I agree that spinal analgesia has certain advantages which make it the method of choice in certain types of case. The main indications are:

1. *Caesarean Section.*—In this operation the advantages of spinal analgesia are well known.
2. *"Failed Forceps" Cases.*—These patients have usually been given large doses of chloroform prior to admission.
3. *Destructive Operations on the Foetus and Difficult Forceps Deliveries.*—In this type of case the operative procedure is often time-consuming and apt to produce shock. Under spinal analgesia there is a surprising absence of shock and the general condition of the patient is much better than it would be under general anaesthesia. Furthermore, the operator has more time at his dispopsal and can go easily.
4. *Cases of severe toxaemia.*

It is a matter of common knowledge, however, that pregnant women are peculiarly susceptible to the effects of spinal analgesia when given by the ordinary methods. Some operators have experienced collapse due to a sudden fall in blood pressure directly upon the injection. Others have commented upon the high incidence of post-operative complications, particularly headache and retention of urine. Personally, I abandoned the use of heavy nupercaine some time ago on account of the high incidence of these post-operative complications. After this I evolved another method of giving nupercaine, based on Quarella's technique, and so far have obtained much better results apart from the absence of the post-operative complications mentioned I believe this method is safer.

The isotonic buffered spinal solution 1 in 200 is used. For cases requiring operative vaginal delivery the spinal needle is inserted between L 3 and 4 with the patient in the lateral position. A 10-c.cm. syringe containing 1 c.cm. of the nupercaine solution is attached to the needle and cerebrospinal fluid withdrawn to the 5-c.cm. mark. The syringe is now removed from the needle, the stylet quickly inserted to prevent loss of cerebrospinal fluid, and the contents of the syringe well mixed. The syringe is attached again to the needle and the solution injected very slowly at the rate of 1 c.cm. a minute. With this slow rate of injection a sudden fall in blood pressure is less likely to occur. For Caesarean section the spinal needle should be inserted between L 2 and 3, 1.5 c.cm. of nupercaine solution should be put in the syringe, and cerebrospinal fluid withdrawn to the 7.5-c.cm. mark. For operative vaginal delivery ephedrine hydrochloride 1 gr. is given intramuscularly. For Caesarean section it is not wise to rely on ephedrine for maintaining the blood pressure, and this drug should be omitted. Instead continuous intravenous adrenaline should be used as described by Evans (*Lancet*, 1944, 1, 15). I regard this method of Evans as the most important recent advance in the technique of spinal analgesia.

I am glad to see that Dr. Resnick advocates premedication for Caesarean section. The ill effects of this have been exaggerated, and I am quite sure that the advantages far outweigh the disadvantages. Either heroin 1/12 gr., or omnopon 1/3 gr. with scopolamine 1/150 gr., can be given. I see no point in giving atropine to every case. It can always be given intravenously if spinal block should fail and general anaesthesia become necessary.

With the technique described above a 1 in 1.000 nupercaine solution comes *slowly* in contact with the nervous tissue, and as a result causes less physiological upset than in the heavy nupercaine technique, when a concentrated solution comes rapidly in contact with the nervous tissue. It is for this reason, I think, that there is less tendency for a fall in blood pressure to occur, and a much lower incidence of post-operative urinary retention and headache, with the method described.—I am, etc.,

Stockport. JAMES ROSS.

SIR,—Dr. Louis Resnick has made such a good case for spinal analgesia in his very able article that there would appear to be some danger of its routine adoption for operative obstetrics by others with less experience of the technique or appreciation of the risks. It would seem prudent to utter a word of warning.

So far from holding an unreasonable prejudice against spinal analgesia, I appealed for an eclectic attitude towards its use (*Journal*, March 7, 1942, p. 339), and would now urge that this also be applied to its use in connexion with Caesarean section and operative vaginal delivery. Every new drug or agent for the production of anaesthesia or analgesia—general, local, regional, or spinal—is tried in obstetrics; some are discarded, others retain a limited sphere of usefulness; none has proved universally applicable; so let it be with heavy nupercaine.

Caesarean section presents certain marked points of difference from any other abdominal operation:

1. *Psychological.*—There is inevitably more tenseness, more drama. To the normal pre-operative apprehension on the part of the patient are added the hopes and fears of the mother for her unborn child; nor can these be dulled by heavy premedication, most surgeons insisting on a minimal amount or even none. Should the baby be apnoeic the routine of respiratory resuscitation, however quiet and well ordered, or the hiss of escaping oxygen is no substitute to the conscious mother for a lusty cry.

2. *Technical.*—The rapid removal of a large abdominal tumour coinciding with a sudden loss of blood do not go well together with the change in haemodynamics associated with normal spinal analgesia. The laxity of the abdominal wall ensures ease of closure.

The percentage of spinal headaches seems a high price to pay for relaxation so easily obtained by any competent anaesthetist who has cyclopropane, gas-and-oxygen with minimal ether or trilene, pentothal alone or in combination, from which to choose; and with any of these can provide ideal operating conditions with safety to mother and child with negligible or no unpleasant sequelae.

Operative Vaginal Delivery.—The well-known effect of a spinal in inhibiting the action of the longitudinal muscle fibres while increasing that of the circular fibres, thus producing a violently contracting uterus with poor expulsive power, should be a sufficient contraindication without suggesting the undesirability of performing destructive operations such as perforation and craniotomy in the conscious patient.

Since the risks of sepsis would be greatly increased in domiciliary midwifery, the doubtful advantage of being able to combine the functions of anaesthetist and accoucheur is further vitiated, since only in extreme emergencies is it justifiable for one person to administer an anaesthetic and operate; such circumstances should be rare in hospital practice.

Finally I should like to submit the following indications for spinal analgesia in obstetrics: (1) the presence of metabolic or respiratory disease of such a degree as to render the skilful employment of a general anaesthetic a greater risk than a spinal; (2) the absence of an anaesthetist capable of producing satisfactory operating conditions with safety to the patient by means of general anaesthesia.—I am, etc.,

Aylesbury. H. W. LOFTUS DALE.

Acute Inversion of the Uterus

SIR,—It may be of interest to record another case of inversion of the uterus treated by the method described by Mr. J. V. O'Sullivan (Sept. 1, p. 282). This patient, a primigravida of 23, was admitted to St. Luke's Hospital, Bradford, on Nov. 10, profoundly shocked. The history is as follows:

L.M.P.—Jan. 18; E.D.D.—Oct. 25. In the antenatal period there were severe headaches and oedema.

Nov 9, 1945.—12.00 hrs.:—Labour commenced.

Nov. 10.—13.00 hrs.: Normal delivery of full-term child; 9 lb 1 oz. 14.30 hrs.: Placenta and membranes expressed. Patient suddenly collapsed, pulseless; total loss 1 pint. The resuscitation

van was called and plasma drip started, three pints being given. B.P. could not be recorded. 17.30 hrs.:—Admitted to hospital; pulse not palpable, B.P. 70/50; indefinite swelling in lower abdomen, very little loss. 18.30 hrs.:—Blood transfusion, 1 pint. Pituitrin m. 4, ergometrine 0.5 mg.; no improvement followed. 19.30 hrs.:—Ten ounces of urine withdrawn; the abdominal swelling was now no longer palpable. Per vaginam a large, firm, shaggy mass could be felt protruding through the cervical rim; it was tender to touch. Two or three pints of dettol lotion at 120° F. were run into the vagina while the introitus was blocked by hand. This was but imperfectly accomplished because of the size of the operator's hand. The manœuvre was only partially successful, although the uterus, with a depression at the fundus, could now be palpated abdominally. A second pint of blood was now given.

I saw the patient at 20.45 hrs., when she was profoundly shocked, B.P. not registering. The shock was greatly exaggerated by the simplest vaginal manipulation. About 6 pints of dettol lotion were run into the vagina, better occlusion being obtained by my larger hand. The fundus rose steadily, and eventually no depression could be palpated abdominally. The douche was then discontinued. Ergometrine 0.5 mg. was injected into the drip-tube. At the conclusion of this operation the pulse was still not palpable and the B.P. could not be registered. 22.00 hrs.:—Pulse still impalpable, B.P. 65/40, fundus rather soft, no vaginal bleeding. Third pint of blood given. 23.00 hrs.:—Fourth pint of blood given.

Nov. 11.—00.45 hrs.:—B.P. 105/60, condition much improved. 09.30 hrs.:—B.P. 120/70, pulse 100, condition good.

Subsequent Progress.—Rise of temperature on the third day, fundus not tender. Involution proceeding satisfactorily, lochia normal. Local cellulitis around the site of the intravenous wound.

The points which seem to me to call for comment are: (1) The profound shock with small loss of blood, aggravated by the slightest vaginal manipulation and failing to respond to antishock treatment. (2) The absence, in this case, of a *dramatic* recovery from shock—in contradistinction to the case recorded by Dr. Daley. It will be observed that a period of two hours followed the reposition of the partial inversion before the blood pressure returned to 105/60. (3) The simplicity of the treatment.—I am, etc.,

Bradford. E. GLEDHILL, M.R.C.O.G.

Acute Yellow Atrophy after Trilene Anaesthesia

SIR,—Major K. N. A. Herdman's description of a case of acute yellow necrosis of the liver following trilene anaesthesia (Nov. 17, p. 689) prompts me to recall a case of my own experience of acute yellow atrophy as a late sequela of burns, which I saw some 18 months ago. My case, though similar in many respects to that described by Major Herdman, differs from it by the fundamental fact that at no time was trichlorethylene administered to the patient. Yet acute yellow atrophy supervened. I do not recall all the details of my case, but the history is briefly as follows:

A soldier aged between 30 and 25 years, in good health hitherto and without serious illnesses in his past history, was admitted to hospital suffering from second-degree burns of face, arms, and chest. He was moderately shocked, and antishock measures were instituted at once. Surgical toilet was carried out approximately two hours after admission, under pentothal (0.5 g.), nitrous oxide and oxygen. The patient was very ill for a few days, but then made a slow but steady recovery. Sepsis was slight. No further anaesthetics were administered. Some six to seven weeks later, when he was almost due to be discharged, he suddenly developed jaundice, which rapidly became deeper; vomiting set in, and despite prompt treatment the patient died in coma a few days later. Necropsy revealed acute yellow atrophy of the liver.

In comparing this case with the one published by Major Herdman, what, then, are the factors, if any, common to both? Both patients received a small amount of pentothal, but, while symptoms in Major Herdman's case appeared a few days after its administration, jaundice in the second case set in more than six weeks after anaesthesia. Moreover, it has now been established that pentothal has no deleterious effect on the healthy liver, being broken down in the blood stream itself. And in my case, at least, not sufficient time had elapsed between the accident of burning and the administration of pentothal to conceive the possibility of gross liver damage, due to the burns, at the time the pentothal was given. Thus to my mind pentothal can be excluded as the culprit. The only common factor in the two cases then are the burns themselves, followed after several weeks by symptoms of hepatic damage.

In the absence of any other known cases of yellow atrophy due to trilene, is it not safe to assume that the condition might be due to the deleterious effect of some abnormal metabolites, toxic to the liver parenchyma after absorption from the burned areas, causing severe symptoms only after some weeks have elapsed?—I am, etc.,

Ashton-under-Lyne. G. M. WYANT, Capt., R.A.M.C.; Graded Anaesthetist.

SIR,—One cannot help feeling alarmed at Major K. N. A. Herdman's account of yellow necrosis of the liver following trilene anaesthesia. Ever since Dr. Langton Hewer's reports to the Royal Society of Medicine in May and July, 1943, I have used the agent—fortunately never with a closed circuit, as I had never seen it so used—as an adjuvant to nitrous oxide and oxygen, and one is tempted to inquire, "Was all that trilene really necessary?" Two ounces seems a large quantity when unconsciousness and immobility are all that are required and the patient has been very adequately premedicated with morphine 1/4 gr. and hyoscine 1/100 gr. followed by 0.8 g. of pentothal. If his liver was damaged already surely he would not have required 0.8 g. pentothal to produce unconsciousness, so the chances are that he had more than a "sleep dose" of pentothal. Surely before any long operation the patient should always have glucose, and some of the more efficient ward-sisters administer it pre-operatively by mouth without being asked.

As I have found it possible to maintain anaesthesia for long operations (anything up to six hours) with only a few drachms of trilene without complaint from the surgeon, I am wondering whether, since the reflexes were brisk when the patient left the table, he was unusually anaesthetic-resistant but with an impaired liver, or whether he could have been "kept under" with less trilene.—I am, etc.,

London, S.W.13. MARGARET JOAD.

SIR,—Major K. N. A. Herdman (Nov. 17, p. 689) reports a case in which the patient died of liver necrosis some eleven days after a general anaesthetic which included, among other agents, the administration of 2 oz. of trilene. He suggests a parallel between this case and delayed chloroform poisoning, but emphasizes that such a complication of trilene anaesthesia has not hitherto been recorded. Burns, sepsis, and malnutrition are considered and rejected as possible factors producing liver damage in this case. The necropsy report lacks detail, but the liver necrosis would appear to be as much in keeping with an infective as a toxic hepatitis, and it seems to me that epidemic infective hepatitis or homologous serum jaundice should be kept in mind. It would be interesting to know more about the treatment of this case between March 4 and April 14 with reference to plasma transfusion and the use of pentothal anaesthesia. Injection of an icterogenic agent between these dates and the onset of symptoms of hepatitis on June 5 gives an incubation period compatible with that of homologous serum jaundice (93 to 52 days). Epidemic infective hepatitis is probably less likely, as this would assume infection of the patient while in hospital, although it is known that infective hepatitis was not uncommon in the B.L.A.—I am, etc.,

London, S.W.13. S. M. LAIRD.

Acroparaesthesia

SIR,—We are indebted to Dr. F. M. R. Walshe for his redescription of acroparaesthesia (Nov. 3, p. 596). He renders the concept unmistakable, and so stimulates further investigation. May I be permitted to submit some points of difference and amplification regarding this syndrome.

(a) Though commoner by far in women, it is not confined to females.

(b) It is not confined to persons greatly physically fatigued or even with muscular atony.

(c) Dr. Walshe's implication that it is not always associated with observable clavicular sagging is confirmed. (He records his impression that such sagging is "commonly" seen in these cases.)

(d) It may undergo remission without physical environmental change. Physical rest is not always indispensable in therapy.

(e) A very comparable state can occur in the feet, though, for fairly obvious reasons, patients do not complain of it so much in this site, and I have not met it rivalling manual disability in extent.

(f) A further objective sign occasionally occurs, in that the finger-tips look as if pinched side to side. Viewed from below the comparative semicircle is replaced by a decided peak. This pinching will modify slowly if there be long-period fluctuations in the acroparaesthesia. As a permanent state the variant is not pathognomonic of this syndrome.

Some queries would appear to be relevant.

(1) Is not rest for a harassed housewife likely to affect a great deal more than her thoraco-clavicular relations? (I cannot follow Dr. Walshe to his "logical conclusion" that, since "a rest or holiday affords remarkable relief," "it suggests a mechanical origin for the syndrome.")

(2) If a "great majority" of cases are indeed due to these mechanical factors, what are the other cases due to? (I agree with Dr. Walshe that "the temptation to find a single pathology for a well-defined syndrome is a strong one, and may often be fallacious." When a human being is in dis-ease, pathology is never "single" in the sense in which he presumably used that word. Traction on, or compression of, the brachial plexus may well play its part in some persons. I have no intention of suggesting that any other factor may singly be operative. Are there not exactly as many pathologies as there are patients?)

(3) Has Dr. Walshe tried the effect of having a colleague of his treat control cases by the regime of comfort and massage he prescribes, but with down-traction applied to the clavicles?

(4) How is it that germinal fringes of the syndrome (uselessness and tingling of the hands for a fleeting period after awaking) commonly occur in people who do not often, for this complaint, come to the neurologist or indeed to any doctor practising medicine?

(5) Dr. Walshe has propounded a term novel to most of us—"medicine proper." It is not clear what he includes under this new term; could he be more explicit?

In the past month I have met typical bilateral manual acroparaesthesia in a young R.A.F. officer of powerful physique, whose cervico-thoracic area showed no *x*-ray abnormality and who had been doing no heavy manual work. He passed through an emotional disturbance of considerable magnitude, after a certain phase of which his acroparaesthesia disappeared. Nor was there (to use Dr. Walshe's own words) sacrifice of any dietary, vitamin, or physiotherapeutic "goat to Aesculapius."—I am, etc.,

Q.A. Military Hospital, Shenley, Herts. G. R. PEBERDY, Major, R.A.M.C.

Artificial Pneumothorax Refill

SIR,—I was interested to read Dr. Alastair Allan's description of an improved artificial pneumothorax needle (Nov. 3, p. 607). It certainly has the advantage of permitting the continuous reading of the intrapleural pressure while the refill is going on; this will minimize the danger of introducing air into a pleural or pulmonary vessel. But it has been shown that air embolism occurs most frequently at the initial plunge of the A.P. needle, before the operator has the opportunity of reading the manometer or introducing air.

The points in favour of Dr. Allan's needle are counterbalanced by two shortcomings: first, the large diameter, which necessitates the use of local anaesthetic in all cases of refill; secondly, the two separate air channels, thus increasing greatly the chances of accidental blockage of the needle during its passage through skin and parietal pleura. Writing about the usual type of A.P. needle Dr. Allan remarks: "During the refill—the dangerous period—no reading can be observed." But this surely can be successfully remedied by switching off the air as frequently as needed and taking manometric readings.

I agree with Dr. C. F. Hawkins (Nov. 24, p. 742) that the use of an ordinary A.P. refill needle is practically painless. Needless to say, the point of the needle has to be sharp and the needle inserted by a quick plunge. Mayer (Packard *et al.*, *Artificial Pneumothorax*, 1940, p. 73), describing the technique of refills, states that "many workers do not employ a local anaesthetic for refills because the operation is usually painless." The reason why so many patients ask for local anaesthetic is that they remember the sometimes lengthy and laborious procedure of A.P. induction, and do not realize the difference between the latter and the subsequent refills. Several patients I persuaded to try a refill without "local" expressed afterwards the wish to continue without it. Many others spontaneously ask to discontinue the use of local anaesthetization, saying that they do not mind the "needle prick." The local anaesthetic seems to have primarily a psychological effect; patients who have never had local anaesthesia do not ask for it.

From a fairly large experience of collapse therapy in Paris hospitals I concluded that a local anaesthetic is unnecessary, and anyway is unknown there. I may quote here the authority of the late Dr. Michel Léon-Kindberg, eminent French phthisiologist, under whom I had the privilege to work in Paris. None of his patients, whether in- or out-patients, ever received preliminary local anaesthesia before A.P. refill. I can remember no instance of air embolism or shock. Air embolism probably may occur whether the needle track has been anaesthetized or not. The pathogenesis of pleural shock is as yet completely obscure, and must be very rare in cases of well-established A.P. How much novocain or procaine will avert the occurrence of pleural shock is also unknown. Yet we know that certain individuals are hypersensitive to cocaine derivatives used locally. Thus Packard (loc. cit., p. 92), discussing what he terms the symptom-complex of pleural shock and gas embolism, draws attention to the importance of derivatives of cocaine in causing acute toxic manifestations indistinguishable from those of pleural reflex or air embolism. Some other workers find also that reactions and pleural effusions are less often encountered if no anaesthetic is used.—I am, etc.,

St. Charles' Hospital, London, W.10. A. I. SUCHECKI.

SIR,—Dr. C. F. Hawkins disagrees with Dr. A. Allan's quotation about the use of local anaesthetic in pneumothorax refills. May I range myself on the side of Dr. Hawkins. It has been my experience that once a patient has been refilled without the use of an anaesthetic it is almost invariably the method of choice for that patient thereafter. I have on several occasions during the past year conducted a census of opinion among my own patients. Out of a total of approximately 200 individuals only three have stated a preference for an anaesthetic, and two of them became ultimately converted. The third is a rather excitable female patient who prefers not to take a chance.

I find that the insertion of the needle is greatly facilitated by a simple manœuvre. This consists of placing an ordinary hard pillow folded lengthwise and tied with a bandage under the patient's waist. The patient lies on the unaffected side, and is rolled partly towards the operator. The arm is extended above the head. This not only increases the available space between the ribs but stretches the intercostal structures and makes it extremely easy to insert the needle and actually to feel its passage through the parietal pleura.

In answer to those who stated that the giving of a local anaesthetic makes it possible to confirm the presence of a free pleural space, I would point out that there is no guarantee that the A.P. needle will be inserted exactly the same distance or in exactly the same place as was the needle through which the anaesthetic was administered. In any case, the presence or absence of a space should have been ascertained by previous screening.

Perhaps the whole argument is summed up in the words of my patient who, when offered the choice, said: "It depends on who is doing it, Doctor."—I am, etc.,

Noranside Sanatorium, Fern, Forfar. PHILIP H. DALGLEISH.

SIR,—I endorse the remarks of Dr. C. F. Hawkins (Nov. 24, p. 742) against Dr. Alastair Allan's quotation that "humanity and common sense call for anaesthetization of the needle track." I find that, with an experience of close on 2,000 refills annually, patients from all walks of life invariably prefer the operation without a local anaesthetic; indeed all my patients refuse such. Immediately before refill the extent of the pleural space should be observed by screen or film examination, noting particularly the position of the lung border at the end of both inspiration and expiration. If two radiographs are taken, one at the end of both phases, they will show in sharp contrast the different positions of the collapsed lung border, the second

showing the obviously greater distance of the lung edge from the chest wall; and, incidentally, the presence and site of adhesions will be seen to greater advantage in the second.

The needle should accordingly be inserted during the natural pause which takes place at *the end of expiration*, thus obviating any risk of injury to the lung, which at this phase is *more out of reach*. There should be no sudden stab. The patient should be instructed to inspire, then expire, and then stop breathing. A Morland needle with a very sharp spear-headed point is next placed *on* the skin in the appropriate interspace and then, comparatively slowly and deliberately, pushed through skin and pleura. The following inspiration on the part of the patient will then show the maximum inspiratory swing on the manometer, the clip on which should be left open and air allowed to enter the pleural cavity at low pressure, thus avoiding air embolism, undue pull on any adhesions, and possibly subsequent pleural effusion.

Incidentally, it is worthy of note that after induction a puddle of fluid immediately collects at the bottom of the pleural space. This is not to be confused with the onset of pleural effusion; it is simply due to the new position taken up by the lymph, which, before induction, normally bathed the pleural surfaces, including the interlobes. This phenomenon can be observed on the *x*-ray screen or radiograph if the patient is examined immediately after induction, provided the mechanical diaphragm on the *x*-ray plant is sufficiently widely open to include the lowest depth of the costo-phrenic sinus.—I am, etc.,

Cambridge. W. PATON PHILIP.

SIR,—I read the correspondence on the humane A.P. refill with much interest. I entirely agree with the views expressed by Dr. C. F. Hawkins. I gave up the use of local anaesthetic after careful investigation of a considerable number of A.P. cases. A random sample of A.P. cases were selected at each refill session; one would be given a local anaesthetic and another no local. When this had been done over a period each patient at different times had a refill with and without anaesthetic. Only two patients expressed a desire to have a local anaesthetic before refills; the others preferred refills without a local anaesthetic. It is interesting to note that the two patients who preferred to have local anaesthetic before refills were given refills after sterile-water injections and declared that the refills were less painful than without a local anaesthetic. Owing to the prolonged nature of the treatment it is decidedly beneficial to the patient not to have injections of either cocaine or novocain before each refill; but if the patient expresses a desire to have a local anaesthetic I give it.

I do not believe that the danger of pleural shock in an established A.P. is greater when local analgesia is omitted. I have had only one case of pleural shock in an established A.P. case in a series of over 15,000 refills, and this occurred in a transfer with a history of several so-called fainting attacks after refills and to which no reference was made in the case notes on transfer. It is interesting to note that the same patient developed pleural shock following the development of pleural friction on re-expansion of the lung. I regard this as redux pleural shock.—I am, etc.,

Derbyshire Sanatorium, Chesterfield. H. P. FERNANDES, Medical Superintendent.

Latent Disease in Far East P.O.W.s

SIR,—The prisoners of war from the Far East are nearly all home by now and about to be demobilized. Many of them are suffering from diseases which may give them trouble in after-life. Stool examinations done on them by Sergt. Baptist, S.S.V.F., as prisoner of war, and later in Rangoon under the aegis of Lieut.-Col. G. A. Ransome, I.A.M.C., showed that about 40% had some intestinal parasite, 13% *Entamoeba histolytica*, 30% ankylostomiasis (by saline concentration), and a few cases of trichomonas and *Strongyloides stercoralis*. Examinations carried out on the troopship coming home showed 3% with enlarged livers. *Entamoeba histolytica* cysts were found in the stools of a high proportion of these. Anaemia due to hookworm is rather more rare but is present in an appreciable number. Deficiency neuroretinitis leading to reduced vision with central scotoma is particularly common among those who did not leave Singapore Island. Chronic malaria seems to have responded in most cases to the six-weeks prophylactic mepacrine course. Old tropical ulcer scars may become eczematized and break down. (The figures quoted here are rough computations and should not be taken too seriously.) Psychoneurotic manifestations are seen chiefly among the civilian internees, who had more attention from the Japanese Gestapo and worse food than the military.

I very much doubt whether the routine demobilization medical examination includes a microscopical stool examination, so it is probable that some of these cases will be coming into the hands of civilian doctors, especially in East Anglia, the soldier having been demobilized without the condition having been spotted while still in the Army. It is up to the medical practitioner to see that these men have a square deal as regards financial compensation for lost hours of work and pension.—I am, etc.,

Ealing, W.5. F. E. DE W. CAYLEY.

The Saline Infusion Bottle

SIR,—Since the blood transfusion services unanimously adopted the Medical Research Council's transfusion bottle for the supply of blood, plasma, and serum many hospitals have been led to use it for all intravenous solutions. In most large hospitals the various saline and dextrose saline solutions used for intravenous infusion are made up by the pharmacist and delivered sterile in M.R.C. bottles.

These bottles, however, are too small for the average routine saline infusion. Unlike blood, saline is commonly required in quantities of 10 or even 20 pints (over the course of several days), and the frequent changing of the one-pint bottle is inconvenient, especially at night. Moreover the washing, filling, sterilizing, and labelling of multiple small bottles give the pharmacist unnecessary work. It is perhaps not sufficiently realized that the expense of a saline infusion lies mainly in the handling of the bottles; the larger the bottles, the cheaper is the infusion. Even in sterilizing, where one would suppose that the autoclave would take only a certain volume of saline irrespective of its containers, the big bottle is still economical, for an autoclave with a capacity of 16 pint bottles will often take 10 of quart size. Anyone doubting these facts should examine the prices of the commercial article; the pint and the quart cost almost the same.

If the quart is the best size for saline, why is it not in general use? Unfortunately those patterns at present available differ from the standard in all their dimensions, so that their use entails the provision of two types of "giving set." This is the crucial point. To avoid it we require a companion to the standard blood bottle with the same size of mouth and same height, and a double capacity accommodated laterally. It seems that no such bottle is made. We have approached the United Glass Bottle Company (makers of the M.R.C. pattern), but they can offer nothing suitable from stock, and to begin manufacture would require an order for a larger number than any single hospital could use.

United effort is required. We find that the Medical Research Council is handing over its wartime responsibility in this field. We have heard, with some alarm, that this subject has been discussed recently among those who are particularly concerned with the organization of the blood transfusion services, and that there was such diversity of opinion that no decision could be reached. Perhaps some of the points of disagreement will appear in subsequent correspondence. For our own purposes we are in no doubt as to the type of bottle we require. We would place an order for it if, through the kindly medium of your *Journal*, we could find a few hospitals who would join us.—We are, etc.,

Hertford County Hospital. J. C. H. HANSON, Pharmacist. T. C. BEARD, R.M.O.

Subcutaneous Oxygen for Sciatica

SIR,—In your correspondence columns (Nov. 17, p. 703) Dr. H. Avery writes on the treatment of sciatica by subcutaneous injection of oxygen, and refers to a letter of mine (Oct. 20, p. 544). He used for the purpose an oxygen injector with bag reservoir supplied by the Sparklet Company. He "used this treatment when all others had failed . . . and had a large number of spectacular cures, until on one occasion (the needle having apparently slipped) my patient suddenly complained of pain over the heart and faintness; in fact he presented a com-

plete picture of air embolism." Fortunately the treatment was successful. The patient rapidly improved and walked home half an hour later. He has never had any sciatic pain since, neither has Dr. Avery used the treatment again.

There was an excellent account of the methods of diagnosis and treatment of sciatica given in vol. 3 of *Modern Technique in Treatment* (published by the *Lancet* in 1927), written by Dr. J. P. Martin when assistant physician to the National Hospital, Queen Square. He defines sciatica as an inflammation of the interstitial tissue of the sciatic nerve or its roots. This is the true neuritis, and a correct diagnosis is essential.

Dr. Martin described the method of injecting oxygen into the subcutaneous tissue over the nerve from a cylinder via a washbottle with warm water until the surrounding tissues are thoroughly distended and ballooned. "These injections often give the most surprising relief" and the "extreme simplicity [of the method] makes it always worth trying."

The oxygen treatment was also recommended by Dr. James Collier, who was physician to the Queen Square Hospital, and described by him in Price's *Textbook of Medicine*, 3rd edition, page 1656, as "a simple and harmless process which is quite painless and often brings most surprising relief." I can thoroughly endorse these opinions from my own experience with cases of sciatica when all other methods had failed (*vide British Medical Journal*, Feb. 12, 1944, p. 230).—I am, etc.,

Worthing. HERBERT H. BROWN.

The Child with Frequent Colds

SIR,—The article by Drs. Irwin and Frankel (Oct. 27, p. 566) has already attracted attention from several contributors, who have offered appraisals and criticisms. One factor which seems to have escaped all mention so far concerns the influence of a properly balanced diet on the problem of susceptibility to disease in general and to catarrhal infections in particular. No attempt was made to investigate in detail the dietetic habits of the 130 children under review or to classify them into acid and lymphatic or alkaline groups. For instance, the importance of the acid-producing foods, as chiefly represented by bread, sugar, and meat, if consumed in too great a proportion, is well recognized as a cause of diminished tissue resistance. Since it is true that the children of the poorer classes live mainly on acid bread and are the first to fall victims to epidemics, it is a fair assumption that the children of the not-so-poor frequently fall short of the properly balanced diet due to the lack of sufficient basic or alkaline foods, such as vegetables (raw and cooked), fruit, milk and its products. Many physicians recognize the "catarrhal" type of child, with its exaggerated "mucoid" reaction, especially in regard to the nose and throat, and the remarkable improvement which can be effected by reducing to a minimum such unsuitable carbohydrates as refined sugar and white bread and adjusting the balance as circumstances permit. This may sound an over-simplification when one realizes that even the correct foods must have the qualities of freshness and vitality that are hardly ever to be found in tins and never in large cities. Nevertheless the principle holds good, and I believe that, had the authors attempted to include in their investigation an evaluation of the dietetic habits of the children on the above lines, it is almost certain that their conclusions would have yielded something much more valuable than the negative results recorded.—I am, etc.,

Kilmacthomas, Co. Waterford. P. G. DOOLEY.

SIR,—My observations lead me to believe that it is children who have been subject to the process of "spoiling" and are in consequence neurotic who suffer most frequently from common colds. These occur despite, or most likely because of, the physical care lavished upon them. Spoiling consists of a mixture of savage restriction of the child's activities on the one hand and lavish indulgence on the other. As a consequence the child is constantly in that emotional state which is the primary cause of the common cold, or perhaps I had better say is the predisposing cause of it. I am sure it is a most dangerous procedure to act—especially surgically—on the assumption that colds have invariably a physical causation. Indeed, such an assumption is contradicted by many facts open to observation.—I am, etc.,

Leeds. E. WRIGLEY BRAITHWAITE.

Significance of the E.S.R.

SIR,—Recent correspondence on this subject emphasizes once more the wide divergence of opinion regarding its value. True, we still do not know what the E.S.R. is measuring, but, whatever the essential mechanism by which the stability of the blood is upset, the interpretation of the result in terms of tissue destruction gives valuable information to the clinician. Determination of the E.S.R. gives a measure of a state or condition, just as determination of the body temperature gives a measure of the febrile state. The one test does not claim to be any more specific than the other. The position has been further obscured by over-elaboration and differences in the methods employed. One would expect widely different results between the original Westergren method, using blood diluted 1 : 4 with 3.8% sodium citrate, and undiluted blood prevented from coagulating by the addition of dry potassium oxalate, even when set up in similar tubes; but so long as one method is used the results are comparable.

The lack of uniform standard values even with the same methods, and of agreement as to the extent of physiological variations, undoubtedly invites criticism and further research. In spite of these drawbacks, however, there are many clinicians who are satisfied that it is possible to get useful information from this test, when it is used, as any experimental procedure ought to be used, as one link in the chain of evidence on which a diagnosis or an assessment of progress may be founded. Too many of its detractors expect the E.S.R. to give information which it is incapable of giving, whilst refusing to accept the information which it can give.

May I cite one example of a situation in which the E.S.R. gives information not provided by any other procedure. The diagnosis of acute endocarditis is often a matter of great difficulty (Price's *Textbook of Medicine*, 1937), since it is not infrequent to find a mitral systolic murmur due to anaemia or simple dilatation. With a true endocarditis the E.S.R. is markedly accelerated, far beyond even the most optimistic of physiological limits, and it should be noted that this information is available in the early stages, just when it is most valuable. Indeed, it is frequently present before there are any localizing signs. Again, it is very difficult to decide whether the lesion is still active after convalescence is apparently established. The E.S.R. gives accurate information on this point, particularly if the result is graphed by 15-minute readings over the hour. My attention was first directed to the value of the E.S.R. in this type of case by the article by Oakley (*St. Bart's Hosp. Rep.*, 1936, **69**, 241), and my own experience in dealing with endocarditis in scarlet fever would lead me to support the views expressed by Dr. J. W. Shackle (Nov. 24, p. 742) rather than those of Drs. D. G. McIntosh and D. M. Keay (Oct. 27, p. 584).—I am, etc.,

JAMES KELMAN.

Diet in Morphine Addiction

SIR,—In reply to Dr. Clifford Allen's letter (Nov. 17, p. 705) I must confess that I have never had the opportunity of treating a morphine addict suffering from pellagra. My assertion that "in no circumstances have I ever known a patient to gain weight in the first two weeks of treatment" referred to addicts only and not to addicts suffering from pellagra.

I do not question that cases of pellagra respond rapidly to treatment and gain weight within a few days, but it certainly surprised me to read about a morphine addict, of twelve years' standing, with pellagra gaining weight within eleven days in spite of the fact that morphine was entirely withheld. I have no quarrel whatsoever with the treatment given, and, far from offering any criticism, indicated that intensive vitamin therapy, which I have employed with gratifying results in the treatment of drug addiction, might have been responsible for the "cure" in the case described by Comerford and Kirman (July 14, p. 44). My communication (Oct. 20, p. 547) nevertheless did intentionally convey considerable doubt regarding the "cure," not of the pellagra but certainly of the drug addiction.

Many authorities assert in the most unequivocal terms that there is no such thing as a cure for narcotic drug addiction. Dr. Allen's statement that he cannot believe that the patient could obtain a supply of morphine over a period of several months while under mental hospital observation is so naive

that it prompts me to inquire how many cases of drug addiction he has endeavoured to manage. The fact that the patient "could walk several miles after discharge" is just as consistent with the persistence or relapse of the addiction as it is with cure.

The point of my letter was certainly not unfairly to criticize an account of an interesting case, but to suggest that a not inconsiderable item in the symptom-complex of drug addiction is a dietetic and vitamin deficiency.—I am, etc.,

ELLIS STUNGO,
Major, R.A.M.C.

London, W.1.

Avitaminosis and Arcus Senilis

SIR,—Having seen in one week a so-called arcus senilis in two men of 25 and 28, both of whom had suffered from beriberi while in the hands of the Japs, I wonder whether avitaminosis may not have been the cause, as a case of an incomplete arcus seen a year ago in a middle-aged patient has cleared up entirely under better living conditions. A tendency to early arci may be familial, though the earliest age at which I have seen it was in a colleague in the last war; he was 24 and had an almost complete circle in both eyes.—I am, etc.,

SYDNEY TIBBLES.

London, W.1.

Politics and Medicine

SIR,—There is much latent criticism of the profession's policy of "Wait and See" towards the new Health Services Bill. It seems to me that it might be useful if some fundamental principles were brought forward in the columns of the *Journal*. To start the ball rolling, I suggest that the profession should agree that politics should play no part in the advancement of doctors in their profession. A parallel case is discussed by Marshal Foch in the preface to his Memoirs. He points out that Joffre, before the war of 1914–18, "had made it possible to reduce, but not entirely eliminate, the number of inefficient general officers whose political opinions had won them their commands. . . . It may be remarked in passing that the very position of an officer should prohibit him, whether in time of peace or of war, from mixing up in the struggles and quarrels of politics." This is arguable, but Church of England clergymen and civil servants are not allowed to sit in the Commons. Foch then goes on, "His professional value can reveal itself only on the field of action before men of the same trade, his peers or his superiors; it cannot be estimated by political men. . . . Politics bring to the choice of Army officers nothing but error and injustice, two causes which more than anything else tend to enfeeble that body of public servants." It would be a great mistake if key positions in the new Health Service were given to medical men because of their political opinions. And if once appointed they can be got rid of only with the greatest difficulty, as Joffre found when he tried to unstick Sarrail.—I am, etc.,

WILFRED SHAW.

London, W.1.

The Aim of Medicine

SIR,—The aim of modern medicine should be the "good life" as the Greeks understood the term. The fit body and the fit mind must go together, and to achieve this we should aim at complete mental, physical, and emotional development. Unless we do this various phases of our personality are in different stages of development, and they will cause emotional instability and conflict within the personality and also with the outside environment.

As Dr. Harry Coke says in his letter (Nov. 10, p. 667) there are many physiological responses to emotional stimuli, probably associated with a pituitary dysfunction. But surely to treat merely the dysfunction of the pituitary is to treat only the symptoms of the disease and to leave the cause itself undiscovered and untreated. Similarly in the treatment of a peptic ulcer the underlying cause should also be treated, otherwise the ulcer is apt to return. Also such metabolic disorders as atheroma and arteriosclerosis starting early in life, and essential hypertension, probably have a background of nervous stress and emotional frustration.

As any doctor who has worked in general practice knows, there is a close association between the antisocial or frustrated and the person suffering from subnormal health. These people already from a large proportion of any medical practice, and as more organic diseases are controlled they will form an increasing percentage. There is a solid mass of chronic ill-health among people leading unsatisfactory lives in rooms, hotels, and boarding-houses which will never be cured by orthodox methods.

I had an extreme case of social maladjustment and chronic ill-health some time ago. A man of 47, physically fit, came to me complaining of psychological impotence. He was an intelligent man of some charm and culture, had always been, but became a heavy drinker and gambler. He lived apart from his wife and had had at least three illegitimate children for whom he had been astute enough to evade responsibility. His early history was as follows: He was orphaned at an early age and joined a cavalry regiment in the 1914–18 war. When his regiment was turned over to infantry he decided this would be too hard work for him. Unfortunately he was able to regurgitate and vomit at will, and he immediately decided to put this faculty to some practical use. He was admitted to hospital and literally vomited his way through nine different hospitals, and after eighteen months in hospital, having lost 3 st. in weight, he was discharged from the Army. He then carefully fed himself up and joined the Royal Flying Corps. Since I treated him in 1943 this man has had a nervous breakdown, and his impotence has been sufficiently cured for the girl friend of the moment to have become pregnant.

How many men have been invalided from the Services in two wars as being psychologically unsuitable, with their neurotic and antisocial traits still untreated, to lead a life of ill-health or perversion causing trouble wherever they go? We as doctors realize that emotional maturity is as essential as physical maturity for adult well-being, and until we are given facilities to treat these cases effectively there will be a great mass of subhealthy and mentally abnormal people in the country.—I am, etc.,

MARY R. ANDERSON.

Chepstow.

Training for Released Service Doctors

SIR,—I am glad to see that Col. C. D. Evans (Oct. 27, p. 585) has drawn attention to the unhelpful Government policy in regard to the further training of doctors who were starting to specialize before being called up. My own experience has shown that this policy, which looks so good on paper, will provide but little assistance to many returning medical officers who would now, but for the war, be well on their way to becoming competent specialists.

I joined the R.A.F.V.R. medical branch in 1937 on qualifying, and had intended to take the F.R.C.S. and M.R.C.O.G. with a view to specializing in midwifery and gynaecology. I did one H.P. and one H.S. job, and then settled down to work for the Fellowship, my intention being to complete that before doing the year's work in midwifery and gynaecology necessary to qualify for entrance for the M.R.C.O.G. examination. I was called up in August, 1939, being due to sit for the Fellowship the following January. Owing to circumstances beyond my control I was not able to continue study, but later, while overseas in 1942–3, took out a correspondence course for the Fellowship. On my return to this country a few months before D-Day, when our bombing offensive was in full swing, study again had to be dropped owing to pressure of work.

I wished to put in six months' intensive study to sit for the Fellowship in July, 1946, but am told that no grant can be made to cover this. Instead, the authorities state that I can have a "house" job for six months at £350 per annum, or a "short general refresher course of two weeks' duration, for which a fee not exceeding seven and a half guineas is paid by the Government." Nothing more. Yet I know of two men who were three years behind me in qualifying, who stayed in the E.M.S. until they had obtained the Fellowship, and then entered the Service as specialists, and are therefore eligible on demobilization for Class III jobs at a salary of £550 per annum. Like Col. Evans, I shall have to live (and support my wife) for six months on the large sum I have amassed as "gratuity" and "leave with pay" if I am to stand a reasonable chance of getting the Fellowship. And what of my wife, who has been separated from me by the "exigencies of the Service" for four out of our six years of married life?

I submit, Sir, that I am paying now for the patriotism which led me to "join up." Never again.—I am, etc.,

AMARUS.

Buying and Selling Practices

SIR,—You were wise, in your leading article of Dec. 1, to draw attention to the wider consequences of any restriction which the Minister may seek to introduce on the buying and selling of practices. Carefully avoiding all personalities, I would like, by a considerable effort, to imagine myself a hypothetical, logically minded Socialist Minister of Health. My object is the laudable one of distributing doctors evenly among the people, of seeing that the poor are attended on the same terms as the rich, of co-ordinating hospitals, laboratories, and other institutions, and of seeing that everything connected with medical care is ultimately controlled by myself.

I have to bear in mind that I am dealing with a very conservative-minded profession, of whose highly technical work I am ignorant. They have the reputation of being as stubborn as mules, so it will be better to lead this donkey with a carrot than to urge him with a goad—at any rate until I have him where I want him. I myself am an idealist who has never hankered for wealth, but I firmly believe that every Conservative has his price, for, to me, the pursuit of private gain is synonymous with Conservatism. Now I find myself in a fortunate position. I firmly believe that it is against the public interest for medical practices run by public money to be bought and sold privately, though it seems fair that the present owners should be compensated. Here, then, is the carrot. Everything now falls together. I arrange that a doctor must have about 2,000 patients to make a living; I forbid him to have more than 3,000. Automatically, the doctors in overdoctored areas plead with me to be allowed to practise in the underdoctored districts. As for the hospitals: Should they beg for pennies in the street? Is it right that the workers should have to join these voluntary contributory schemes? Obviously the State should accept this responsibility. And so—he who pays the piper calls the tune; fortunately and inevitably. All hospital staffs should be paid—why should they give their services? This is pauperism. They shall be paid—by me. Fixed salaries—and that will be the end of this Harley Street racket. What a simple and subtle scheme I have devised! I compensate the doctors; I compensate the hospitals. I just give—which is more blessed than to receive. I need do nothing else for the whole thing to adjust itself.—I am, etc.,

Ashtead, Surrey. W. EDWARDS, M.D.

Obituary

SIR DAVID GALLOWAY, M.D., F.R.C.P.Ed.

We regret to report the death in his 85th year of Sir David James Galloway, which it is now known took place on March 5, 1943, at his home at Johore Bahru, Malay Peninsula. Sir David had a most distinguished and varied career in Malaya—outlying parts of the British Empire which furnish opportunities for medical men of his calibre. He was born in 1858 in Edinburgh, and educated at Daniel Stewart's College and the University of Edinburgh. He took the M.B., C.M. degrees in 1884, the M.D., with gold medal for his thesis, in 1900, and in 1903 was elected to the F.R.C.P.Ed., having become a Member of the College in 1899.

He went out to the Straits Settlements as early as 1885 to practise medicine, and by 1895 his rapidly growing reputation as a physician led to his appointment to accompany the Sultan of Johore on his visit to England in that year. For his services he received the Second-class Order of the Crown of Johore, and in 1914 he was promoted to the First Class for services to the Johore State. Among other responsible positions held by Sir David may be mentioned service as Unofficial Member of the Executive Council of the Straits Settlements in 1903–14 and 1921, vice-chairman of the Straits Opium Commission in 1908, president of the Royal Asiatic Society Straits Branch, and member of the Council of the College of Medicine, Singapore, in which for years he lectured on the principles and practice of medicine. In January, 1924, he was knighted for his many public services, and on his retirement from active work he decided to make his home in the country he had served so long and faithfully, among his many friends. He published papers in this and other journals on splenic abscess of malarial origin, the aetiology and treatment of sprue, otomycosis, and other tropical diseases.

Sir David Galloway was a member of the British Medical Association for fifty years, and held office as president of the Malaya Branch in 1928–9. He represented his Branch at the Birmingham Annual Meeting in 1911 and at the Edinburgh Meeting in 1927.

W. S. DIGGLE, M.Ch.Orth., F.R.C.S.

Mr. Walter Saxon Diggle, whose early death took place on Nov. 17, had made a name for himself as an orthopaedic surgeon in the North-West of England. He studied medicine at the University of Liverpool, graduating M.B., Ch.B. in 1931, and obtained the degree of M.Ch.Orth. in 1936, a year after taking the F.R.C.S. His first appointments were as house-surgeon at the Liverpool Royal Infirmary and surgical registrar at the Northern Hospital; he then became supervising surgeon to the Oakmore Rehabilitation Centre under the Miners' Welfare Committee, and orthopaedic surgeon to the Walton Hospital, to the Bootle General Hospital, and to the Warrington Infirmary. In 1944 he was elected to the staff of the Royal Liverpool United Hospital.

A colleague writes:

The premature death of Walter Diggle has written *finis* to a career only half completed. Had he not been afflicted with the disease which so quickly and remorselessly exacted its ransom he would certainly have achieved a position of eminence and authority in his chosen specialty of orthopaedics; not that his ambitions lay in that direction. His only concern was to do his work honestly and well, and although he could delight his friends and students with frank and humorous expositions of his ideas, he seldom sought a wider audience. Those of us who were privileged to be his friends will have many happy memories of Diggle and one sad, splendid memory of a brave man facing a death sentence with almost unbelievable courage. Perhaps what will be remembered most is his uncompromising hatred of shams and hypocrisy. He was a stalwart champion of straight thinking and straight talking. He was never in two minds about his own opinion on any subject, but would listen readily, almost eagerly, to an opposite view, ready to laugh it to scorn if he could expose its falsity or to change his own view if convinced by the force of an argument new to him. He lived his life to the full, worked hard, played hard. He seemed to bring a breath of fresh air into the company when he joined it. It seems hard to realize that his boisterous laugh is now stilled for ever.

Diggle had, in the short space of ten years, established a wide connexion in hospital and private practice in Liverpool, Bootle, Warrington, and St. Helens. A year ago came his appointment to the teaching school of the Royal Liverpool United Hospital, and the fact that he was given senior rank without a preliminary period of assistantship was a high tribute to the reputation he had established. He was on the threshold of great achievements, and his untimely death has robbed us of a well-loved friend. He leaves a widow and a young daughter.

DONALD DUFF, F.R.C.S.Ed., F.R.F.P.S.

We regret to announce the death on Nov. 25 of Mr. Donald Duff, the well-known Glasgow surgeon, who gave outstanding service at the Royal Infirmary as a member of the visiting staff for many years, and afterwards on the Board of Management.

Donald Duff was born in Glasgow in 1873 son of Murdoch Duff, and was educated at Daniel Stewart's College, Edinburgh, and St. Mungo's College, Glasgow. He took the Scottish triple qualification in 1901, the F.R.C.S.Ed. in 1904, and the F.R.F.P.S.Glas. in 1905. He was elected surgeon and gynaecologist to the Glasgow Central Dispensary in 1907 and assistant gynaecologist to the Glasgow Maternity Hospital in 1911, and for ten years held the chair of physiology at St. Mungo's College. During the war of 1914–18 he was a surgical specialist in the R.A.M.C., and consulting surgeon to the Malta Command with the rank of major. After his return to civilian practice he was appointed surgeon in charge of wards at the Glasgow Royal Infirmary and visiting surgeon to the Bellahouston Hospital under the Ministry of Pensions. He lectured in clinical surgery at the University, and examined for the Royal Faculty of Physicians and Surgeons and for the Scottish Conjoint Board; he was a Fellow of the Association of Surgeons of Great Britain, of the Glasgow Northern Medical Society, and of the Medico-Chirurgical Society of Glasgow. He took a particular interest in bone surgery and abdominal surgery, and published many papers on these subjects, including one in these

columns in 1922 on the treatment of ununited fractures by bridge grafts. On his retirement from the active staff of the Glasgow Royal Infirmary in 1938 he was elected consulting surgeon.

R. D. GILLESPIE, M.D., F.R.C.P.

Dr. F. O'Donnell Finigan writes from Bampton, N. Devon:

The untimely death of Dr. R. D. Gillespie has left a void in psychiatry and British medicine which will be felt for years to come as a loss sustained by the whole profession. His reputation and original fertile influence extended to every corner of the globe and, possibly, he was regarded even more highly in America than in his native land; his name was almost a household word in Continental medicine.

Dr. Gillespie's graciousness and kindliness, his humility and greatness were appreciated by all who knew him, whether as patient, friend, or colleague. Having known him as a colleague and friend one is apt to forget the brilliance of his attainments. By the age of 28 he had reached senior consultant rank, and from then on he rose from height to height for nearly twenty years. Among his innumerable friends and admirers the opinion has been expressed that there is no man of sufficiently great calibre on whom his mantle might fall. Profoundly impressive also has been the deep sadness and sense of personal loss expressed by his patients—a loss seeming to go deeper than is usually felt by patients after the death of even the most beloved physician. It has been stated sometimes that he had about him some "other-worldness" as though through him something shone from another sphere. He himself seemed to be quite unaware of this, but all who came in contact with him sensed it and left feeling the richer.

The world, and in particular this island, is the poorer for his passing; nevertheless it may be that his memory will act as a spur to renewed effort in the field of psychiatric research, and thus in death he may achieve even more for his beloved science and people than he did during his lifetime. It is for those who received their early encouragement from him, and for all who remain, to carry forward his ideals, sensing that fidelity to this cause may lead them to the mountain peak which "R. D." so often referred to in allegory. This would be a living memorial such as he himself would have wished.

News has been received of the death of Capt. KENNETH DANIELS, R.A.M.C., in a prisoner-of-war camp in Borneo on Aug. 6. He studied medicine at Newcastle-upon-Tyne, and graduated M.B., B.S. of Durham University in 1929. A member of the Portsmouth Division of the B.M.A., he was in partnership at Copnor before the war, and soon after joining up in 1939 was sent to Singapore Military Hospital. He became medical officer at Kuala Lumpur until the fall of Malaya, when he managed to make his way back to Singapore; as the Japanese approached he escaped to Java, where he was eventually taken prisoner. "C. R." writes: The death of Kenneth Daniels will be felt among a very large circle of friends and patients. His "happy-go-lucky" spirit and his charming boyish manner endeared him to all. He leaves behind the memory of a very fine and painstaking doctor, a great gentleman and a brave man. The greatest sympathy will be extended to his widow, who has borne the separation bravely, the more so when little or no news could be had of him. She had hoped that "no news was good news," it was *not* to be.

Lieut.-Col. WILLIAM BYAM LANE, C.I.E., C.B.E., I.M.S. (ret.), died on Nov. 20, aged 79. He was educated at Christ's Hospital, London, at Neuenheim College, Heidelberg, and at St. Bartholomew's Hospital, and qualified with the M.R.C.S. and L.R.C.P. in 1888. In the same year he entered the Indian Medical Service, and soon saw active service with the Hazara Expedition in 1891, in Waziristan in 1894–5, and with the Chitral Relief Force in 1895; for each of these he received a medal with clasp. Soon after he entered the Jail Department, and was promoted to be Inspector-General of Prisons in the Central Provinces from 1905 to 1916. His reputation as a sound administrator led to his being chosen for the important work of Inspector of the Disciplinary Labour Corps, Mesopotamia Expeditionary Force, in 1916; in 1920–1 he held the post of Inspector-General, Civil Jails, Mesopotamia; and from 1919 to his retirement in 1921 he was Acting Director of Health Services, Mesopotamia. For his valuable work in those responsible positions Col. Lane was awarded the C.I.E. in 1918 and the C.B.E. in 1919. After his retirement he lived in London, and in 1925–6 held the honourable position of Master of the Mercers' Company. He joined the British Medical Association on qualifying in 1888 and retained his membership for 58 years. He was a thoroughly sound and much-respected officer of the I.M.S. who will be mourned by his many friends.

The Services

A meeting will be held at the Duke of York's Headquarters (Centre Block), Chelsea, on Wednesday, Dec. 19, at 6.30 p.m., of officers who served in the 17th (1st County London) General Hospital, Territorial Army, to discuss the question of an annual dinner.

Capt. A. R. T. Lundie, R.A.M.C., has been awarded the M.C., and Capt. H. Mannington, R.A.M.C., has been mentioned in dispatches, in recognition of gallant and distinguished services in the field.

The following have been mentioned in dispatches in recognition of gallant and distinguished services in Italy: Brig. (Temp.) S. Arnott, C.B.E., D.S.O., and Col. C. H. K. Smith, O.B.E., M.C., late R.A.M.C. Brig. (Temp.) W. M. Cameron, O.B.E., Brig. (Acting) J. Kinnear, O.B.E., T.D., and Brig. (Local) F. A. R. Stammers, C.B.E.; Cols. (Temp.) W. A. D. Drummond, T. D. Inch, C.B.E., M.C., T.D., W. A. Y. Knight, A. S. Pern, O.B.E., T.D., and W. L. Spencer Cox, O.B.E., M.C.; Col. (Acting) J. T. Robinson; Lieut.-Cols. (Temp.) H. J. B. Atkins, T. F. Briggs, J. B. Herman, R. Johnston, D. W. E. Lloyd, M.C., C. M. Marsden, J. B. McEwen, M.C., J. S. Miller, T. P. Sewell, E. G. Sibley, W. R. Spruit, T.D., A. W. S. Thompson, O.B.E., C. S. Thomson, A. P. Trimble, A. S. Wesson, P. L. E. Wood, D.S.O., M.B.E.; Majors H. F. Anderson, R. L. Benison, A. D. C. S. Cameron, R. G. Davies, E. A. Fiddian, C. Kenton, W. McLeod, R. M. Paton, M. S. Williamson, M.C., and G. H. Wooler; Major (Temp.) A. Beardwell, D. Bell, A. B. Birt, R. W. Cope, S. H. Croot, D. H. Cummack, H. W. Davis, A. C. Dornhorst, T. Duncan, K. B. Gibson, A. M. Giles, R. E. Haswell, J. Howell, M. A. Jones, A. R. Kennedy, T. G. Lowden, L. G. Macfarlane, W. B. McKenna, R. J. Milbank, R. I. Mitchell, A. A. Murray, W. M. Owen, J. H. Patterson, W. A. V. Payne, K. R. D. Porter, M.B.E., H. E. Smith, R. S. Stevens, D. L. Stewart, A. M. Tait, R. B. Terry, A. J. Thomas, J. H. Vickers, M. A. G. Ward, J. H. Warren, M.B.E., and G. N. Wilson; Capts. E. S. Aiello, J. W. Clark, S. A. Cohen, H. J. S. Coldham, J. Comyn, A. Fearnley, D. Ferguson, R. Fletcher, N. E. France, C. B. Hinckley, B. L. Hoffmann, M. S. Howe, M.C., P. H. Jones, W. A. D. Jones-Roberts, M. Latner, R. S. Lawrie, R. T. S. Louttit, B. S. Lush, J. Macdonald, A. F. J. Maloney, J. F. Mawe, R. P. Maybin, R. I. McAlley, A. D. McGill, J. D. McGregor, N. C. Mond, M. E. Moore, N. P. Orchard, A. T. Pagan, A. Paterson, D. E. Paterson, D. Purdie, E. E. Rawlings, J. J. Reeks, J. W. Richmond, J. F. Robertson, F. H. Robson, L. C. Robson, H. D. Rossiter, R. P. G. Sandon, J. Scott, H. A. Shaw, J. R. S. Shields, E. C. S. Talbot, J. E. Tannian, A. L. Tulk, E. Vare, A. S. Walker, J. S. Walters, D. Weitzman, F. J. Whitaker, and A. L. Wyman; Capt. (Temp.) F. de B. White; Lieuts. W. H. Chanter, N. Dancer, J. R. Grice, W. Hawthorne, F. H. Hogarth, R. J. Holliday, J. Noble, J. R. Purvis, E. A. Williams, and C. D. Woodhead, R.A.M.C. Col. M. Kirk Bryce; Col. (Temp.) D. Dutt; Lieut.-Cols. (Temp.) C. W. Greene and W. Laurie; Lieut.-Col. (Acting) D. N. Basu; Major R. H. Neeve; Majors (Temp.) P. K. Chaterjee and S. L. Rikhye; Major (Acting) V. S. Trivedi; Capts. B. Uddin, A. Bhattacharya, K. C. Ganapathy, M. Y. Ghaznavi, P. Jacobs, J. Singh, I. Jahan, K. C. Makerjee, J. D. Phibbs, S. R. Sarma, S. B. Datta, T. M. Seetapathy, and T. Stephens, M.C.; Capts. (Temp.) S. V. Ghurye and A. B. Rushton, I.A.M.C. Major G. Singh, Jaipur Medical Services. Col. J. R. Boyd, C.B.E., M.C., New Zealand Military Forces.

CASUALTIES IN THE MEDICAL SERVICES

Killed in action or died on active service.—Capts. Robert William McNamara and Adiel Elad Hazael Reid, R.A.M.C., and Flight Lieut. Hugh Macivor Given, R.A.F.V.R.

Died.—Capt. William Thomson, M.C., I.A.M.C.

Previously reported missing, now known to have been killed in action at Alexandra Hospital, Singapore, on Feb. 14, 1942.—Lieut. Geoffrey Rogers, R.A.M.C.

Killed in air accident.—Major Harry William Gilbert Staunton, I.M.S.

DEATHS IN THE SERVICES

Capt. GEORGE PETER NASH, R.A.M.C., died in Brussels of diphtheria on Nov. 23 when on his way home for demobilization. He was born in Canada, and qualified in 1932 from Queen's University, Ontario. He had only been just over a year in practice at Oxford when he sought a commission in the R.A.M.C. He was in the landings at Sicily, Salerno, and Anzio. He leaves a widow and two small sons. The news of his tragic end when so near home after over five years of service was received with profound regret by his colleagues in Oxford, who extend their sincere sympathy to his widow and young children.

Universities and Colleges

ROYAL COLLEGE OF PHYSICIANS OF LONDON

The Fitzpatrick Lectures on "The History of the English Medical Profession," which were to have been given by Dr. Cecil Wall on Dec. 11 and 13, have been cancelled owing to the illness of the lecturer.

Lord Moran, P.R.C.P., writes: In your issue of Dec. 1 you have printed extracts from a letter addressed to me by the President of the Royal College of Surgeons. It is, therefore, only fair to your readers that I should send you my reply:

Royal College of Physicians,
Nov. 30, 1945.

My dear President,—Thank you for your letter. There are two issues: what is best for the nation, and what is the course which is most likely to help the Royal College of Physicians to discharge its duties to the profession in the years to come. If I may dispose of my second question forthwith, I think you will agree that the only body that can answer such a question is the Comitia of the College. The Comitia decided on Oct. 25, with only two dissentients, that at the present time the College must remain where it is. I tell you this because I feel that it would be unfair to your Council if they were left in doubt about the actual feeling of the Fellows of my College. And I may add that this verdict has been endorsed on practical grounds by a Committee of independent experts.

May I then pass to consider whether that decision is at variance with the national interest? Most Fellows of this College have yet to be convinced of the precise benefit to the State if they were to abandon a building where they have long been the guests of the Crown, a building which for them has treasured historic associations, in order to migrate at a very difficult time so that they might live nearer to the sister College. It is, incidentally, common ground that if the Royal Colleges should ever decide on a common site (and the resolution of the Standing Joint Committee to which you refer spoke of a common site, and not of any particular site, such as Lincoln's Inn Fields) each College would retain its identity.

I am anxious to say nothing which may make it more difficult for my College to work together with our surgical friends, but this should be said. The consultant service of the future will inevitably bring all sections of consultants and specialists into more intimate co-operation, and the new responsibilities that will necessarily fall on the three Royal Colleges in connexion with that service will give them a unity of purpose which will not be dependent on geography. Meanwhile, it can only be hurtful to the natural development of a friendly partnership of that kind to refuse to accept the decision of the Comitia, and to ignore the very weighty reasons which made that decision inevitable. "When friends plan and do together, their minds become one mind and the last secret disappears." What is needed is a common purpose. In the coming months the Royal Colleges will have an opportunity of serving the nation by pooling their resources and their wits to give it a really efficient consultant service. If that opportunity is taken we need not fear that a real partnership of the Royal Colleges will fail to come into being.

Yours sincerely,
MORAN.

UNIVERSITY OF OXFORD

In a Congregation held on Nov. 24 the degree of D.M. was conferred, in absence, on J. C. Ryle.

UNIVERSITY OF CAMBRIDGE

Sir Lionel Whitby gave his inaugural lecture as Regius Professor of Physic on Dec. 5. Its title was "The Science and Art of Medicine."

The report of the Financial Board on allocations from the University Chest to the several funds states that in the published estimates no account is taken of the Treasury grant of £15,000 for medical purposes. Since it is necessary for a separate account to be kept of the expenditure of this grant, it will be credited to a Medical Grant Fund, from which allocations may be made direct to the medical departments concerned.

At a Congregation held on Nov. 23 the following medical degrees were conferred:

M.D.—E. E. Pochin, G. E. Parker, I. A. Guest.
M.B., B.CHIR.—*D. A. N. Barran, *R. Bellamy,* D. N. Seaton, *R. V. Walley, *J. A. Waycott, *E. J. M. Weaver.

* By proxy.

UNIVERSITY OF LONDON

At a meeting of the Senate, held on Nov. 28, Walter Freudenthal, M.D., was appointed to the University readership in dermatological histology tenable at University College Hospital Medical School as from Oct. 1.

The title of professor emeritus in morbid anatomy in the University was conferred on G. W. de P. Nicholson, M.D., who was University professor of morbid anatomy at Guy's Hospital Medical School from 1922 until April, 1944.

The *University of London Gazette* dated Oct. 12, only recently received, announces that the Wellcome Trustees are giving to the University an endowment of £44,000 to provide for the institution of a part-time Chair of Tropical Medicine to be held at the London School of Hygiene and Tropical Medicine.

An Institute of Child Health has been set up, at which will be tenable the Chair of Child Health recently established through the generosity of the Nuffield Foundation. For the time being the institute will be a central activity of the University and will be given facilities for its work both at the Hospital for Sick Children, Great Ormond Street, and at the British Postgraduate Medical School at Ducane Road. Eventually the institute will form part of the federation of postgraduate medical institutions in London, the scheme for which is now being worked out.

The following have been recognized as teachers of the University in the subjects indicated in parentheses: *London (R.F.H.) School of Medicine for Women:* Dr. W. G. Scott-Brown (Laryngology and Otology); Dr. Mary M. Shaw (Venereal Diseases); Dr. Ursula Shelley (Paediatrics); Dr. Ernest T. D. Fletcher (Medicine); Dr. Emma C. Williams and Dr. Lucy Wills (Chemical Pathology). *St. Thomas's Hospital Medical School:* Dr. C. B. B. Downman (Physiology). *St. George's Hospital Medical School:* Dr. R. D. Teare (Forensic Medicine). *King's College:* Dr. J. A. C. Knox (Physiology).

The appointments of house-physician at Southmead Hospital, Bristol, and medical clinical assistant at Sheffield Royal Infirmary have been approved for the purposes of the M.D. examination (Branch I).

The reduction in the clinical course for the M.B., B.S. examination from 36 to 30 months is to be continued up to the end of the session 1945–6, but the question of continuing it after that date will be considered this month.

An additional M.B., B.S. examination will be held in 1946, beginning on Monday, Jan. 28.

Medical Notes in Parliament

Postgraduate Courses for R.N. Doctors

Mr. A. V. ALEXANDER explained on Nov. 16 that postgraduate medical courses up to six months' duration were provided for medical officers of the Royal Navy who were making their career in the Navy, so that they might be of greater use in their subsequent service. To throw open these courses to R.N.V.R. doctors would involve additional expense which he did not consider justified in view of the fact that the careers of these officers lay outside the Service.

The Navy's Ratio

Mr. ALEXANDER stated on Nov. 19 that the present ratio of medical officers in the Navy to personnel was nearly 3 per 1,000. The present proportion of doctors to the civil population was 0.7 per 1,000. Conditions in the Royal Navy so differed from those in civil life that true comparison was impossible. Duties of Naval doctors included treatment of Merchant Navy personnel in certain ports.

Medical Demobilization

Replying on Nov. 20 to questions on the demobilization of medical officers, Mr. ISAACS said the number to be released in Class B in the medical profession, as in other professions, was necessarily limited. Within this limited number the Central Medical War Committee was able to deal with the cases where the need was most urgent, knowing the position over the country as a whole. Release of medical officers in Class A proceeded concurrently with release in Class B. He did not think it appropriate to interfere further with the Class B scheme. Col. STODDART-SCOTT said the Central Medical War Committee was allowed to recommend only 33 medical officers monthly for demobilization under Class B, although over 100 cases worthy of recommendation came before it each month.

In a statement circulated on Nov. 21 Mr. DUGDALE gave the following target dates of releases of medical officers in the Royal Navy: Groups 17 to 20, Dec. 31, 1945; 21 and 22, Jan. 31, 1946; 23 and 24, Feb. 28, 1946; 25 and 26, March 31, 1946. A tentative further forecast for medical officers was: Groups 27 to 29, April 30, 1946; 30 to 32, May 31, 1946; 33 to 35, June 30, 1946. Target dates were also given for dental officers.

Blood Tests in Motorists

In reply on Nov. 22 to Col. Gomme-Duncan, Mr. EDE said the law made no provision for blood tests to be taken compulsorily in a case where a motorist was suspected of being under the influence of drink. He was not aware of any cases

in which these tests had been made on the instructions of the police. Where samples of blood had been taken from a motorist this had been done at the motorist's express request. It was open to a motorist to arrange for a separate analysis to be made; the difficulty would be to ensure that the analysis related to samples of blood taken from the defendant at the same time.

Mr. MANNINGHAM-BULLER asserted that it was a fairly regular practice in the Midlands for samples to be taken from suspected persons when in hospital with injuries sustained in a motor accident. He suggested that where blood samples were taken duplicate evidence should be given to the suspected person. Mr. EDE said that if the police did take such samples it would have to be the subject of some regulation so that the defendant could produce his own independent evidence. He was not convinced it was necessary to give the police this power in England. A practice of the kind prevailed in some of the United States.

Women Medical Students

Replying on Nov. 22 to Mr. Peter Freeman, Mr. BEVAN said the Government had made it a condition of future grants to medical schools that a reasonable proportion of women students should be admitted. Medical schools which had not previously admitted them were making plans to do so as soon as the difficulty of providing the necessary additional accommodation could be overcome.

Health of British Forces in Germany

There is no indication of an increase of cases of infectious diseases in the British Zone in Germany. An epidemic control system has been established on the borders of this zone.

After consideration by the Army Pathology Advisory Council on behalf of all three Services it has been decided not to immunize against diphtheria the British Forces generally in Germany. All medical and attached personnel in medical units are immunized where necessary after Schick testing. In the event of outbreaks steps will be taken to immunize all at risk.

Mr. Dalton on Doctors

On Nov. 27, during a Finance Bill discussion about the taxation of motor cars and of petrol, Mr. DALTON said that if the petrol duty were increased all sorts of people would claim rebates, including the doctor, who used his car in the course of his profession. The Government would give bits of paper to doctors or commercial travellers entitling them to get their petrol cheaper. These would be "traded" and the Government would not be able to control this black market.

The House agreed to the duty on cylinder capacity as proposed in the Bill.

Private Practice and Colonial Medical Service

Answering an inquiry on Nov. 28 by Col. Dodds-Parker, Mr. GEORGE HALL recorded that since the Colonial Medical Service was instituted in 1934 no officer appointed to it had a right to engage in private practice. In many cases officers were allowed to do so as a privilege under conditions governed by local regulations. Differences in local circumstances and in previous custom led to a wide variation in the procedure hitherto adopted in the different Colonies. He had now under consideration proposals which would lead to much greater uniformity.

Professional Subscriptions

When the House of Commons was in Committee on the Finance Bill on Nov. 29 Colonel ERROL moved that any amount not exceeding £15 in any year, which was paid by a taxpayer as subscription to an institution or other body conducted mainly for the advancement of any branch of learning, science, or technology and not operated for profit, should be deducted from the taxable salary, fees, or emoluments of such a person. He said these subscriptions were a burden to young men struggling to make their way in a profession. Mr. LINSTEAD said that the independent practitioner was entitled to deduct subscriptions which he paid to scientific societies if necessary in the practice of his profession. The man who happened to be an employee was not allowed to deduct them.

Sir FRANK SOSKICE said the practice differed under Schedule D and Schedule E. The former was more generous. Mr. Dalton was considering the discrepancy. He could not accept Colonel Errol's proposal. The proposed new Clause was negatived.

Committee on Scientific Man-power and Resources

Mr. ATTLEE announced on Nov. 29 that the Government had decided to appoint a committee of leading scientists and others to consider the policies which should govern the use and development of British scientific man-power in the next ten years. He was asked by the committee to submit an interim report on broad lines at an early date. Man-power was the most urgent problem. The committee would start its inquiry at once under the temporary chairmanship of Sir Alan Barlow.

Nurses in Mental Institutions: Government Regulation.—During the debate on Nov. 20 on the second reading of the Emergency Laws (Transitional Powers) Bill, Mr. W. S. MORRISON pointed out that it prolonged temporary laws for two years. The schedule of the Bill included Regulation 22AB, which gave power to require nurses, etc., to continue in employment in mental institutions. Why should the Minister of Health have this power? There was no doubt that compulsion would be needed for the unhappy purpose of staffing these mental institutions in the next two years. Mr. Ede said that Regulation 22AB had received a surprising amount of attention. A considerable number of the male staff of mental institutions were non-commissioned officers who had served in the Army. There was still a shortage of these men. Until they came back it was necessary that the people who took their places should be retained in employment. The Order did not apply only to male nurses, but the serious shortage was in respect of them. He hoped the Regulation need not be enforced through the whole period to Dec. 31, 1947. The Bill was read a second time.

T.T. Milk in Schools.—On Nov. 22 Miss WILKINSON said that under the Regulations for the Provision of Milk and Meals, 1945, the source and quality of school milk must be approved by the medical officer of health. Subject to this no exception was taken by her Department to the supply of tuberculin-tested milk to school children if heat-treated milk was not available or, in other cases, if no extra expense was involved. There were no medical grounds on which she would be justified in encouraging the supply of tuberculin-tested milk in preference to heat-treated milk.

Beds for Tuberculosis in Scotland.—At June 30, 1945, the latest date for which information is available, local authorities in Scotland had 1,898 tuberculous patients on their waiting lists and 5,47[illegible] patients under institutional treatment. The total number of beds available is approximately 6,700. The difference is accounted for mainly by the number of beds, estimated at 500, for which no nurses are available, and the number of beds in private sanatoria.

Medical News

On his 80th birthday, Nov. 28, 1945, a silver rose bowl was presented to Dr. H. G. Adamson by thirty of his old assistants and house-surgeons in the skin department of St. Bartholomew's Hospital at a sherry party held at Dr. Henry Corsi's house in Harley Street. Subscriptions had been sent by his old pupils from places as far apart as Australia, South Africa, and East Africa. In spite of the difficulties of the present time some sixteen of the subscribers attended the party to pay tribute to their old teacher, whom they were glad to see looking hardly a day older than when he retired from St. Bartholomew's Hospital eighteen years ago.

The Long Fox Lecture will be delivered at 8.15 p.m. on Tuesday, Dec. 11, in the main lecture theatre of the Wills Physical Laboratory (Royal Fort), Bristol University, by Prof. M. Skene, D.Sc. Subject: "Substances controlling Plant Growth."

The Royal Surgical Aid Society will hold its 83rd annual meeting at the Mansion House on Wednesday, Dec. 12, at 4 p.m., with the Lord Mayor of London in the chair.

Dr. C. J. Blok, chief pharmacist to the University and Municipal Hospitals, Amsterdam, will give a lecture on "Pharmaceutical Conditions in Holland under the German Occupation" before the Pharmaceutical Society of Great Britain (17, Bloomsbury Square, W.C.), on Thursday, Dec. 13, at 7 p.m.

On Thursday, Dec. 13, at 8 p.m., at the Royal Society of Tropical Medicine, 26, Portland Place, W., the American Ambassador will present to Dr. C. M. Wenyon, F.R.S., the Theobald Smith gold medal, awarded to him by the American Academy of Tropical Medicine.

A meeting of the London Association of the Medical Women's Federation will be held at B.M.A. House (Tavistock Square, W.C.) on Friday, Dec. 14, at 8.30 p.m., when Miss D. J. Kinloch Beck, F.R.C.S., will speak on "The Scope of Neurosurgery."

A lecture entitled "A Criticism of Physical Medicine" will be given by Sir Morton Smart on Saturday, Dec. 15, at 3.15 p.m., at the Royal Institute of Public Health and Hygiene, 28, Portland Place, W. Mr. V. Zachary Cope, president of the Board of Registration of Medical Auxiliaries, will take the chair. Physiotherapists and students of physiotherapy are invited, but admission will be by ticket only, which can be obtained from the honorary secretary, Society of Physiotherapists, 24, South Molton Street, London, W.1.

At the 283rd anniversary meeting of the Royal Society held on Nov. 30 Sir Henry Dale, O.M., gave his presidential address. Sir Robert Robinson was elected as his successor, and a portrait of the retiring president by Mr. James Gunn was unveiled.

The annual meeting of the Empire Rheumatism Council will be held at 11, Chandos Street, London, W.1, on Thursday, Dec. 13, at 4.30 p.m., when the chairman, Lord Horder, will present the annual report.

On Oct. 20 (p. 543) Sir Arnold Lawson, president of the Royal Medical Benevolent Fund, made a moving appeal for contributions to the Christmas Gifts Fund. Readers who meant to respond but have not yet done so are asked to send their contributions marked "Christmas Gifts" to the Secretary, R.M.B.F., 1, Balliol House, Manor Fields, Putney, S.W.15.

Visiting hospitals and medical centres in Britain for the next three weeks are the following Norwegian doctors: Dr. Kristian Kristiansen, Neurological Department of Oslo University Clinic; Dr. Hans Frederik Fabritius, Municipal Hospital, Oslo; Dr. Alf Brodal, University of Oslo; and Dr. Per Hanssen, Oslo Municipal Hospital. The visit has been arranged by the British Council.

The American Association for the Study of Goiter again offers the Van Meter prize award of 300 dollars and two honourable mentions for the best essays submitted concerning original work on problems related to the thyroid gland. The award will be made at the annual meeting of the Association in Chicago, in April or May, 1946, providing essays of sufficient merit are received. The competing essays may cover either clinical or research investigations; should not exceed 3,000 words in length; must be presented in English; and a typewritten double-spaced copy sent to the corresponding secretary, Dr. T. C. Davison, 207, Doctors Building, Atlanta, 3, Georgia, not later than Feb. 20.

The National Association for the Prevention of Tuberculosis has appointed Major Eric Wittkower, R.A.M.C., to conduct an investigation into the psychology of tuberculosis, and he will take up this work on his release shortly from military service. The research will begin with careful case histories and personality studies on a number of tuberculous patients.

The Food Group of the Society of Chemical Industry has issued from 56, Victoria Street, London, S.W.1, its syllabus for the remainder of the session 1945–6. All meetings are to be held in London, except joint meetings with the Yorkshire section at Leeds on Dec. 15, and with the Edinburgh section on Jan. 24.

To meet the increased demand for essential medicinal supplies during the winter months the Minister of Food has decided to authorize a temporary increase in allocations of sugar for the preparation or manufacture of medicines in accordance with formulae of the *British Pharmacopoeia, British Pharmaceutical Codex,* and *National War Formulary* during the period ending Jan. 5, 1946. The amount of the increase is 5% of the usage of sugar for this purpose during the twelve months ended June 30, 1939.

EPIDEMIOLOGICAL NOTES

Discussion of Table

In *England and Wales* whooping-cough, diphtheria, and scarlet fever were more prevalent, increasing by 85, 73, and 53 cases respectively. Decreases were recorded for acute pneumonia 43, measles 42, and dysentery 32.

Scarlet fever and whooping-cough followed similar trends during the week; the general picture was one of small rises in the north and south with fewer cases in the midlands.

Diphtheria had its highest incidence for 85 weeks; rises were recorded in Lancashire 41, Northumberland 17, Yorks West Riding 16, London 11, and Middlesex 11. Notable decreases were in Warwickshire 25, and Durham 18.

Measles was prevalent only in Norfolk, Norwich C.B. 56; one-seventh of the total cases in the country were notified in this city.

Dysentery fell to the lowest level for the past forty-six weeks. The chief returns were London 37, Lancashire 22 (Liverpool C.B. 11), Gloucestershire 19 (Bristol C.B. 18), Yorks West Riding 14, and Glamorganshire 12.

In *Scotland* infectious diseases were less prevalent. The falls in notifications included primary pneumonia 51, scarlet fever 40, whooping-cough 20, dysentery 20, cerebrospinal fever 13. The only increase was one of 26 for diphtheria, this rise being confined to the south-eastern and western areas.

In *Eire* diphtheria rose by 14, and whooping-cough fell by 20, while enteritis and diarrhoea remained stationary with 50 cases, of which 33 were notified in Dublin C.B.

In *Northern Ireland* there were 9 fewer cases of diphtheria, and 6 more notifications of scarlet fever.

Week Ending November 24

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 1,911, whooping-cough 1,232, diphtheria 654, measles 453, acute pneumonia 579, cerebrospinal fever 32, acute poliomyelitis 15, dysentery 223, paratyphoid 10, typhoid 7, typhus 2.

No. 46

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended Nov. 17.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1945 (a)	(b)	(c)	(d)	(e)	1944 (Corresponding Week) (a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	36	2	12	4	1	45	3	19	2	2
Deaths		—	1				1	2		
Diphtheria	646	50	183	91	15	619	20	171	110	29
Deaths	11	2	2	1	—	15	—	2	3	1
Dysentery	180	37	54	1	—	217	33	88	—	—
Deaths				—	—				—	—
Encephalitis lethargica, acute	—	—	—	—	—	2	—	2	—	—
Deaths		—					—			
Erysipelas			51	9	2			62	15	2
Deaths		—					—			
Infective enteritis or diarrhoea under 2 years				50					29	
Deaths	34	2	16	11	1	55	3	7	8	3
Measles*	403	35	92	118	1	6,001	65	311	34	191
Deaths	1	—	—	—	—	5	—	—	—	—
Ophthalmia neonatorum	54	5	19	—	—	62	6	19	—	—
Deaths										
Paratyphoid fever	1	—	2(B)	—	—	18	1	1(B)	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Pneumonia, influenzal†	420	31	9	4	2	626	15	7	4	4
Deaths (from influenza)	14	2	2	—	1	33	1	4	1	—
Pneumonia, primary			148	15				233	26	
Deaths		18		12	10		38		9	10
Polio-encephalitis, acute	3	—				2	—			
Deaths		—					—			
Poliomyelitis, acute	32	1	1	1	—	12	1	2	1	—
Deaths		—					—			
Puerperal fever		2	13		—		2	12		1
Deaths										
Puerperal pyrexia‡	125	12	16	—	—	127	8	11	2	1
Deaths		—					—			
Relapsing fever	1	—			—	—	—			—
Deaths										
Scarlet fever	1,674	134	269	19	42	2,335	56	357	37	90
Deaths	—	—	—	—	—	2	—	1	—	—
Smallpox	3	3	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Typhoid fever	1	—	—	8	1	7	—	2	13	1
Deaths	—	—	—	—	—	—	—	—	1	—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Whooping-cough*	1,203	84	51	32	3	1,410	46	116	60	13
Deaths	5	2	—	1	1	3	1	3	1	—
Deaths (0–1 year)	303	31	49	25	14	366	23	66	30	25
Infant mortality rate (per 1,000 live births)										
Deaths (excluding still-births)	4,294	638	560	184	109	5,099	747	663	184	146
Annual death rate (per 1,000 persons living)			12·7	11·9	§			15·2	11·9	§
Live births	6,345	855	786	335	265	6,507	584	927	337	259
Annual rate per 1,000 persons living			15·7	21·6	§			18·9	21·9	§
Stillbirths	174	26	30			228	18	29		
Rate per 1,000 total births (including stillborn)			37					30		

* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

† Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

‡ Includes puerperal fever for England and Wales and Eire.

§ Owing to movements of population, birth and death rates for Northern Ireland are still not available.

Letters, Notes, and Answers

All communications with regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1. TELEPHONE: EUSTON 2111. TELEGRAMS: *Aitiology Westcent, London.* ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated.

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ANY QUESTIONS?

Diphtheria Immunization

Q.—*A child was immunized three years ago with A.P.T., 0.1 c.cm. and then 0.5 c.cm. one month later. It is now said that the correct dosage is 0.2 c.cm. and then 0.5 c.cm. Should the child be re-immunized with two doses in view of this, or would one boosting dose be sufficient?*

A.—The defect in the immunization course described is the possible inadequacy of the primary stimulus to the immunity mechanism. A single reinforcing dose might give all the response that is required, but, in view of the long interval, it would probably be better to give a complete course consisting of two spaced doses of 0.2 c.cm. and 0.5 c.cm. of A.P.T.

Hepato-renal Syndrome

Q.—*What is the hepato-renal syndrome and how is it related to the state described as cholaemia? What is the best treatment for a patient with liver disease who seems in danger of passing into the state of hepatic (? hepato-renal) failure?*

A.—The name "hepato-renal syndrome" is sometimes loosely applied to any condition in which there is simultaneous insufficiency of the liver and the kidneys; examples of this are Weil's disease and carbon tetrachloride poisoning. If the term is used in this sense it becomes so comprehensive as to be almost meaningless. The name "hepato-renal syndrome" is therefore better confined to conditions in which primary hepatic disease is followed by signs of renal failure. The syndrome in its classical form is seen after operations on the gall-bladder or biliary tract and after mechanical injuries of the liver. It may, however, occur with any severe hepatitis or necrosis of the liver. It is not generally appreciated that degenerative changes of varying degree are always found in the kidneys of patients dying from acute infective hepatitis and homologous serum jaundice. The lesions range from simple cloudy swelling to actual necrosis, similar to that of mercurial poisoning, and they are classified by the pathologist as cholaemic nephrosis. Similar renal changes are found after death in the hepato-renal syndrome, and we might therefore define the syndrome as cholaemia plus cholaemic nephrosis.

There are two schools of thought about the mechanism of production of the renal damage. It is similar to the renal damage which results from the crush syndrome, gas gangrene, and incompatible blood transfusion. One school ascribes it to the action of toxic substances, such as products of digestion, which are detoxified in the normal liver, products of liver autolysis, and the toxins of micro-organisms in the liver or the biliary passages. The other school ascribes the renal damage, not only in the hepato-renal syndrome but in all these disorders, to vascular shock, dehydration, and failure of the blood supply to the kidney.

The primary objectives of therapy in cholaemia and the hepato-renal syndrome are to repair dehydration and restore the disturbed blood chemistry to normal, to reduce the metabolic load on the liver and kidneys, and to promote the regeneration of cells which have been destroyed. It is desirable to have frequent estimations of the blood urea, blood sugar, plasma chloride, and plasma bicarbonate, and a chart should be kept of the fluid balance. If parenteral therapy is used, the greatest care must be taken to avoid circulatory overloading, oedema of the lungs, or abrupt alterations in the blood chemistry. Glucose should be given freely, by mouth or intravenously. Calcium salts are of value for the relief of symptoms of cerebral irritation. Barbiturates are dangerous and should not be used for intravenous anaesthesia. If there are signs of vascular collapse, transfusion of plasma is probably desirable. So far there will probably be general agreement; controversy arises over the value of treatment with proteins, amino-acids, and choline. Orthodox therapy is to restrict the intake of both proteins and fat, to reduce the work of the liver. Recently there has been a tendency to give a high protein intake, in the belief that proteins may protect the liver from fatty infiltration and necrosis and promote regeneration of the parenchyma. Data are still inconclusive, and the use of protein hydrolysates and methionine must be considered very much an experiment. There is a stronger case for choline chloride, as it is unlikely to do harm if injected slowly, and it is believed to influence the kidneys as well as the liver. A daily dosage of 10 g. has been recommended, and this should be given by slow intravenous drip in normal saline, not exceeding 3 g. choline an hour.

Oral or Injected Oestrogens

Q.—*What are the advantages of injecting synthetic or natural oestrogens into the body over the oral route? Please indicate any diseases or disorders alleviated and corrected by parenteral oestrogens only, and unaffected by oral treatment.*

A.—In giving oestrogens it is important to avoid unnecessarily high dosage and to aim at achieving a continuous action, bearing in mind that small and oft-repeated doses are more effective than large doses given at infrequent intervals. So long as it is efficient, oral administration is clearly preferable, for it not only assures a regular and frequent intake but is more convenient than repeated injections.

Natural Oestrogens.—With the possible exception of oestriol, which is in any case weakly oestrogenic, natural oestrogens are much less effective when given by mouth than when they are injected intramuscularly. Oral preparations are therefore employed when a minimal effect is sufficient, as in the treatment of climacteric symptoms, vulvo-vaginitis in children, etc. When a maximum effect is desired parenteral administration is necessary. Aqueous solutions are quickly absorbed and their action is fleeting, so they are rarely used. Hormone esters (e.g., oestradiol benzoate, oestradiol dipropionate) in an oily medium, which are more slowly absorbed and have a more prolonged effect, are therefore usually employed for therapeutic purposes. They are used in the treatment of uterine hypoplasia, uterine inertia, to suppress lactation, and to induce abortion when the foetus is dead. For such uses it would be difficult to achieve a sufficient concentration of hormone in the blood stream by oral administration alone. In many cases there is much to be said for combining oral and parenteral administration, thus ensuring both a powerful and continuous application of the hormone. Recent developments to achieve these objects are to inject oily suspensions of crystals, and to make subfascial and subcutaneous implants of hormone tablets. Although effective, this latter method is open to the disadvantage that, once applied, the treatment is out of control; it is not easy to find and remove the tablet if it proves to have untoward effects.

Synthetic Oestrogens.—Synthetic oestrogens are not destroyed or inactivated to any extent by the processes of digestion and assimilation, so they are almost as efficient when given by mouth as by injection. Their potency on oral administration is not much less than that of natural oestrogens administered parenterally; some, indeed (e.g., dienoestrol), are more potent. The fact that synthetic oestrogens are cheaper, and that by the oral route alone it is easy to assure the patient of an intake adequate for the treatment of any condition, has led to their present popularity, which has been achieved at the expense of the natural oestrogens. This is perhaps unfortunate, because their high potency is not always appreciated; they are often administered too freely and in too large a dose. Again, they frequently cause toxic symptoms such as nausea, vomiting, and headache (? due to overdosage). There is little, if any, need to give synthetic oestrogens by injection—they are sufficiently active by mouth. Parenteral administration does sometimes seem to decrease their tendency to produce vomiting, but not always.

Furunculosis

Q.—*I would be grateful for advice on an obstinate furunculosis. The patient is a woman of 35, stout and in good condition. Several boils develop together in the external auditory meatus. The patient attributes her condition to wartime feeding.*

A.—This may be a case of boils localized by reason of the character of the skin in which the first lesion arose. In that case appropriate local treatment is most important. The part should be kept dry, and watery solutions, syringing, and ointments should be avoided. Dry heat, as in short-wave diathermy and *x*-ray therapy, is beneficial. A solution of one of the dyes in spirit, or 10% phenol in glycerin, is also a suitable local measure. It is doubtful if specific therapy, such as penicillin injections, is necessary, but it may be considered, and penicillin may similarly be used as a local application. If the affection is of long standing, then penicillin or vaccines or non-specific shock therapy often help. The patient should be warned against fiddling with the ear.

In a general way chronic boils are dependent upon general health (urine and blood particularly should be examined), a focal source of infection (such as a fissure, running ear, mouth or nose sepsis, pruritus ani), the type of skin and patient (seborrhoeic and hyperhidrotic), and occupation (oil and tar workers, etc.). Even with localized boils this approach is necessary and desirable. Wartime diet is not responsible for boils.

Rubbing the Skin after Subcutaneous Injections

Q.—What are the indications for, and the rationale of, rubbing or kneading after giving a subcutaneous injection? Is spirit or iodine swabbed over the surface a few times likely to sterilize the skin? If not, does massage encourage inoculation of the puncture with staphylococci, etc., from the neighbourhood?

A.—The object of this manœuvre is to disperse the injected fluid and so hasten its absorption. This may be of slight benefit when the fluid is a drug which is required to act as quickly as possible. It is actually contraindicated after the injection of an active immunizing agent, particularly A.P.T. In other circumstances it is merely superfluous. The added risk of infection must be very slight; pressure would tend to produce an outward flow along the track of the needle, and penetration by bacteria from the surface should therefore not occur. Adequate treatment with iodine or spirit does disinfect the skin in the sense of ridding it to a large extent of its "transient" and possibly dangerous flora. It is impossible to destroy the "resident" flora (including staphylococci), but these organisms are usually non-pathogenic.

Test for Death from Drowning

Q.—When the body of a man who had fallen overboard and was seen caught up in the boat's propeller was eventually hauled out of the water I noticed that, although no clotting was present (presumably due to the action of sea water), there was no bleeding from any of the severe lacerations. Apart from the length of time the body had been held under water, I concluded from the absence of bleeding that the heart had stopped. Was this correct? If so, would one test for death in cases of drowning by incising a vascular part of the body? If, after squeezing out any stagnant blood from the surrounding parts, no further bleeding occurred, could one assume stoppage of the heart and death? Does a weak pulsation of the heart cause some blood-flow in the arterioles, which could be recognized from an incision? The answer given in these columns that death should be assumed only when rigor mortis had begun to set in shows that a quicker test for death is desirable.

A.—It can always be assumed that death has taken place when arteries cease to bleed, and the bigger the artery the more definite the proof of death becomes. To make use of this fact in a test for death would be unjustified for several reasons.

Under certain conditions the action of the heart is liable to be so weak that it cannot be observed by ordinary clinical procedures. Such instances commonly occur in cases of hanging, suspected drowning, electric shock, injury by lightning, and in the newly born. In these cases the weak action of the heart may maintain only a very small flow of blood through the vessels. Incising a vascular area, even arteriolar, may reveal a slight ooze of blood only, devoid of pulsation and leading to an erroneous impression of actual death. The incision of a larger artery may indeed indicate whether or not life still exists, but such an operation is unwarranted and may itself precipitate a fatal issue or lead to unnecessary complications. The only procedure in any case of doubt is to continue with resuscitation until breathing is established or death is absolute. In cases of suspended animation from electric shock or lightning this may necessitate the continuance of artificial respiration for two hours or more.

Fatigue and Depression

Q.—Is there any satisfactory treatment by drugs or diet for fatigue and depression in a male aged 60? All tests are negative, despite a long history of colitis, which has improved with the onset of a synovial hypertrophy in one knee-joint. This knee trouble has itself improved, but the subjective symptoms have increased. Occupation is full-time. Energy runs down rapidly, especially after lunch. Abstainer and smokes tobacco, two ounces a week.

A.—The difficulty here is mainly one of diagnosis. The commonest cause of such symptoms appearing, in the absence of any abnormal physical finding, would be involutional depression. If this were established the prospects of recovery with electrical convulsion treatment would be excellent. Other possibilities are an anxiety state, possibly brought about by uncongeniality of work or by private affairs, dietetic inadequacies, early cerebral arteriosclerosis, etc. A psychiatric examination is required and reference to a consultant seems to be indicated.

Supraorbital Neuralgia

Q.—A girl of 22 suffers from right supraorbital neuralgia. Health is otherwise good. Dental and E.N.T. examination revealed nothing abnormal. An injection of novocain into the supraorbital nerve relieves the pain for one or two days. What treatment is suggested?

A.—Supraorbital neuralgia is a term used to describe more than one condition. It may mean a pain strictly confined to the distribution of the supraorbital nerve or it may include any pain situated above the orbit. Supraorbital neuralgia in the former sense is likely to be associated with some tenderness of the supraorbital nerve, and often with hyperaesthesia and hyperalgesia of the skin which it supplies. It is due to a toxic or inflammatory lesion of the nerve itself, and is likely to be relieved temporarily by an injection of novocain into the nerve, and permanently by following this with a few minims of 90% alcohol.

Supraorbital neuralgia in the more general sense may be a symptom of a large variety of disorders. The pain may be referred to this region from the eye, nasal sinuses, and the upper incisor teeth. One form of supraorbital neuralgia is associated with migraine and is known as migrainous neuralgia. Trigeminal neuralgia usually involves the ophthalmic division only after the second or third division is already affected. Lastly, it must be remembered that such pain is sometimes psychogenic. The treatment will depend upon the cause.

Autogenous Vaccines in Tuberculosis

Q.—A male patient aged 35 had pulmonary tuberculosis, confirmed by x-ray examination and positive sputum. Before the war he was given an autogenous vaccine, and has since kept perfectly fit. Is this case exceptional, and is there any risk in giving a patient with a positive sputum an autogenous vaccine?

A.—It is unlikely that the administration of an autogenous vaccine was instrumental in causing the apparent recovery of this patient. Spontaneous "cure" is not an uncommon occurrence in tuberculosis, and it accounts for the occasional apparent successes of popular nostrums. It is possible that the patient's symptoms were due to secondary infection of an indolent fibrocavernous lesion and that the vaccine helped to control this secondary infection. Autogenous vaccines have been recommended for the treatment of cases of this type, but few authorities are convinced of their value.

Effects of Putrefied Meat

Q.—May I continue the discussion on putrefaction of meat, poultry, and game (JOURNAL, *Oct. 20, p. 555*). *The wild Naga tribes of N.E. India appear to prefer their meat putrid. I was inclined to think this was a case of acquired immunity. On the other hand, I have seen cases of nausea, vomiting, and diarrhoea—usually transient—in ordinary individuals who have eaten partly putrid venison. However, I have never seen similar ill effects from eating game, such as grouse, partridge, etc., in this country or abroad. Have experiments been carried out to ascertain the effect of "extracts" made from putrid game on cultures of some of the ordinary pathogenic organisms?*

A.—Your correspondent's experience of putrid meat being eaten by Naga tribes without harm is quite in line with experience elsewhere. His other remark, that transient symptoms may occur from the consumption of such foods in individuals, is less well authenticated, but "high" venison might be contaminated with pathogenic staphylococci and so might contain toxic enterotoxin. He asks if experiments have been carried out, and the answer is, Yes. Savage (*J. Hyg.*, Camb., 1921, **20**, 69) carried out a long series of experiments with kittens (the most suitable animal), feeding them daily for at least a week with meat foods in an extreme state of decomposition. The general result was that, apart from some loss in weight in some of the kittens, there were no symptoms or detrimental effects. Savage remarks: "In no case was there the slightest evidence of infection or any ill effects, apart from disturbances of nutrition, probably to be accounted for by the nauseating food." The experiments also included feeding with large quantities of the bacteria isolated from these highly decomposed foods, and with sterile filtrates. Decomposed fish was used as well as decomposed meat. Considering the whole question, including a study of a very large number of food-poisoning outbreaks, Savage adds that his investigation "singularly fails to bring forward any evidence associating the consumption of food in a state of incipient putrefaction with illness in those who consume it."

Dry Rot

Q.—What is "dry rot"? Is it caused by a fungus? What steps can be taken to prevent its spread? Is there anything in the superstition that dry rot in a house is detrimental to the health of its occupants?

A.—Dry rot is caused by a fungus, *Merulius lacrymans* Fries. Timber which is attacked is reduced to a dry, powdery consistency; hence the name of the disease. Occurrence of the fungus is always associated with excess of moisture in the timber. Common predisposing causes are the use of unseasoned wood, leaky pipes, faulty gutters, inadequate dampcourses, and cracked or porous walls. Trouble may also arise from lack of ventilation and consequent accumulation of very humid air. Once established, *Merulius lacrymans* spreads rapidly and is capable of forcing its way through brick or stone walls in search of fresh food. Prevention of spread involves: (1) finding and removing the source of moisture; (2) complete removal of all infected wood; (3) replacement with well-seasoned timber treated, preferably by pressure impregnation, with creosote or copper naphthenate.

The only way in which dry rot in a house may affect the health of the occupants is by the sudden collapse of floors or other structural timber. The superstition probably arises from the fact that the damp conditions which favour growth of the fungi may, in themselves, affect health adversely.

Demerara v. White Sugar

Q.—*How does sugar-cane or beet become the white product on our table? Are any vitamins or minerals lost in the process? Is demerara sugar better than white sugar?*

A.—The juice obtained from beet-root or cane is evaporated and sugar crystallizes out. This sugar is redissolved and purified by the precipitation of salts, such as calcium carbonate, in the solution, and by treatment with activated charcoal. Vitamins and minerals of the cane or root are lost in the process. In the case of beet-root the chief vitamin lost is ascorbic acid.

Demerara sugar contains small amounts of nitrogenous impurity, calcium, and iron, which are almost completely absent from white sugar. If our present ration of sugar were taken as demerara sugar it would increase the day's calcium and iron by 17 mg. and 0.3 mg. only.

INCOME TAX

Expenses of Employment

W. T. inquires what expenses are allowable to a whole-time M.O.H. for income-tax purposes.

*** The statutory rule is that expenses wholly, exclusively, and necessarily incurred in the performance of the duties of the employment are allowable. This covers the cost of running a motor-car in so far as it is used for the purposes of the employment and the cost is not met by the employer. "Capital" costs—e.g., the cost of purchasing a car—cannot be deducted, but a depreciation allowance can be claimed annually. Subscriptions to professional societies can be deducted if the employer requires the employee to belong to the societies in question.

LETTERS, NOTES, ETC.

Examination Questions for Radiographers

DR. HUGH MORRIS (Manchester) writes: Can anyone connected with the Society of Radiographers tell a mere radiologist what importance is attached in radiographic circles to the lymphatic drainage of the breast? For, believe it or not, candidates for Part I of that society's November examination were expected to be able to describe that drainage in detail. Surely the examiners can find, in the whole of the human body, enough questions bearing on the daily work of the radiographer without hunting for questions that are not of the slightest practical importance. Or is it that they have been reading some of the questions for the S.R.N. examinations and have decided to produce semi-medical radiographers? Whatever it is, it should never have happened.

Phytic Acid and Calcium Deficiency

DR. J. P. MCGOWAN (Aberdeen) writes: Regarding your annotation on phytic acid and calcium deficiency (Nov. 3, p. 610) may I point out again that rickets is due not to a lack of calcium but to a lack of phosphate. The simple fact that vitamin D is useless in preventing or curing the condition due to calcium deficiency (osteoporosis) ought to leave no doubt that this condition is not rickets.

Ichthyosis

"A DOCTOR'S WIFE" writes: I have just read the question and answer headed "Ichthyosis" (Nov. 17, p. 713). It occurred to me that it might be of interest to give my experience of treating this condition in my own case (even though I am a laywoman).

My father—now aged 85—has always had marked ichthyosis. Loose flaking scales up to 3/4 in. in diameter are quite usual, particularly on his legs and arms. As a child the skin all over my body—and to a lesser degree on my face—was very dry and scaly; and a source of great misery and shame to me, particularly when staying in other people's houses, where I left a trail of skin at each dressing and undressing. It improved very slightly about puberty. When about 17 I discovered the advantage of using some cosmetic cream on my face and hands after each washing. Later I began experimenting with the rest of my body, and after some years, during which I tried a great many different things, I finally found that I could keep the condition almost completely in check by a daily hot bath with superfatted soap, followed immediately—and this is most important—while the skin is still slightly moist and warm, by a fairly liberal application of paraffin. molle alb. While the skin in still moist and pliable this is almost immediately absorbed, but sometimes a slight excess has to be wiped away before dressing. I found that by regularly doing this, and also exposing the skin gradually to the sun and air after sea-bathing (followed, of course, by an application of the ointment) during every spell of fine weather my skin is, in the summer, able to sweat and tans well, while becoming almost as smooth as the average skin. In the winter, although drier, it does not scale or crack.

As this skin disorder can be a source of great misery, particularly to women, I have felt it might be helpful to give the result of my many years of experiment. This is not of course a cure, and relapses to its former state if for any reason I have to miss my routine treatment. One other thing: in my experience liquid paraffin is not nearly so good—it is not well absorbed and aesthetically unpleasant, leaving the skin shiny and soiling the clothes. Also yellow petroleum jelly is irritating over a long period, is not an emollient, and not well absorbed. No ointment, I find, is of the slightest use unless the skin has been warmed and wet before rubbing it in.

Surgical Emergencies in Dogs

DR. FARQUHAR MURRAY (Newcastle-upon-Tyne) writes: I have had two black Aberdeen terriers. Both had major surgical emergencies and made excellent recoveries. *Case 1.*—At 8 weeks old it hurriedly gulped the knuckle of a chop bone, which became impacted between the glottis and the sternum. It was diagnosed by Mr. Elphick (veterinary surgeon) and confirmed by *x*-ray examination. The bone showed clearly in the photo like an arrow-head with the prongs upwards. Under nembutal the oesophagus was opened and the bone, which had been impacted for four days, removed. The dog was back in my house, with the stitches out and the wound completely healed, in three days. *Case 2.*—At 2 years old it suddenly flopped one morning, and during the day showed symptoms suggestive of obstruction. It retched repeatedly and made abortive efforts at defaecation. Mr. Colin Welsh (veterinary surgeon) considered there was intestinal obstruction, but neither *x*-ray nor palpation nor repeated rectal examination was able to determine the site or the cause. A later rectal examination showed blood and mucus, and he diagnosed an intussusception. He operated under nembutal at 2 a.m. next day, and found a gangrenous ileo-colic intussusception with local peritonitis. He resected the mass and did a later anastomosis. The dog was back in my house, with the stitches out and the wound well healed and as fit as a fiddle, in six days. I mention these two cases not only for their surgical interest but also in the firm belief that possibly in the secretions of dogs we may find something comparable to penicillin. I quote them also out of admiration for members of an allied profession whose diagnostic ability and technical skill are well worthy of recognition.

A Question of Nationality

DR. J. UNGAR writes: In his lecture, reproduced in the *Journal* of Nov. 10, Sir Howard W. Florey mentioned the pyocyaneus protein used in the treatment of varicose ulcers by Honl and Bukovsky who are described as Russians. The two above-named investigators were actually Czech professors at the Charles University in Prague and their original work was published in the Slav language in the *Proceedings* of the Royal Academy of Science and Art some forty years ago, and therefore hardly accessible now. The information Sir H. W. Florey got was from abstracts in German journals, and that is why the origin of the two was erroneously attributed to another Slav nation.

Journals and Books for Italy

MAJOR W. MACKENZIE, R.A.M.C., wishes to thank the many doctors who have contributed whole-heartedly in response to his appeal (July 7) for British medical publications, of which there is still a need in Italy. Parcels should in future be addressed to Lieut.-Col. G. Frizelle, R.A.M.C., Deputy Director, Public Health Subcommission, Allied Commission Headquarters, Rome.

Corrections

DR. J. L. BURN, M.O.H. for Salford, writes to point out an error in the annotation entitled "The Case for Nurseries" published on Nov. 24 (p. 735). The letter printed in the appendix to the memorandum was not from the medical officer of health for Salford but the medical officer of health for Smethwick. Dr. Burn does not agree with the statement that the dangers described "are entirely theoretical." Although these dangers may have been over-estimated in the past they are, he says, real and demand great vigilance and effort.

The report of Dr. Wenyon's presidential address which appeared in last week's issue contained a mistake in the account of Lieut.-Col. W. H. Hargreaves's work on amoebic dysentery and the importance of eradicating bacterial infection by penicillin or one of the sulphonamides in the treatment of resistant cases (p. 775). Col. Hargreaves's name was inadvertently written Henderson.